SAILING DIRECTIONS

FOR THE

RIVER AND GULF OF ST. LAWRENCE.

PART III.

184

SAILING DIRECTIONS

FOR THE

RIVER AND GULF

OF

S T. L A W R E N C E;

BY

HENRY WOLSEY BAYFIELD,

CAPTAIN ROYAL NAVY, F.R.A.S.

BEING THE RESULT OF A SURVEY MADE BY ORDER OF THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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CONTENTS.

PART III.

CHAPTER XIII.

Chaleur Bay.

CHAPTER XIV.

The Coast of New Brunswick North of Miramichi.

CHAPTER XV.

The Coast of New Brunswick from Point Escumenac, to Bay Verte inclusive.

CHAPTER XVI.

Gulf of St. Lawrence—Northumberland Strait—Coast of Nova Scotia.

CHAPTER XVII.

Northumberland Strait—Prince Edward Island from North Point, to West Point, and to Cape Bear.

CHAPTER XVIII.

Northumberland Strait—The East Coast of Prince Edward Island from Cape Bear to the East Point—The North Coast of Prince Edward Island.

SAILING DIRECTIONS

FOR THE

GULF AND RIVER ST. LAWRENCE.

PART III.

OF THE SOUTHERN PARTS OF THE GULF.

THE BEARINGS ARE MAGNETIC—THE MILES ARE 60 TO A DEGREE—AND THE CABLES ARE 100 FATHOMS.

CHAPTER XIII.

CHALEUR BAY.

109. Chaleur Bay, general Description.—110. Grand River; Little and Great Pabou; Newport; Point Maquereau.—111. Port Daniel; Nouvelle River.—112. Paspebiac.—113. Bonaventure Point; Cascapediac Bay and Anchorage.—114. Carleton Roads; Heron Island and Rock; Nash and Charlo Rivers.—115. Ristigouche River; general Description; Bonami Rocks and Maguacha Spit; Dalhousie Island and Harbour; Middle Ground; Directions with Fair and Beating Winds.—116. The Coast from Heron Island to the River Nipisighit; Bathurst Harbour; the Coast from the Nipisighit to Point Mizzenette.—117. Caraquette, general Remarks; Caraquette Island and Shoal; Mizzenette Ledge; Fishermen Ledge and Channel; Pokesudie Shoal; Caraquette Channel and Harbour.—118. Shippigan Sound; its Bays, Harbours, and Gully; Shippigan Channel: Shippigan Flat.—119. Miscou Harbour; Miscou Flats; North Point of Miscou; Miscou Banks.

Chaleur Bay.

109. THE magnificent bay of Chaleur is the largest in the Gulf of St. Lawrence, being 25 miles wide, on a S.W. ½ S. line across its entrance, from Cape Despair to Miscou Island; but the entrance is more generally considered to be at Point Maquereau, from which the north point of Miscou Island bears S.S.E. 14½ miles. The depth of the bay, from Miscou to the entrance of the Ristigouche, is about 75 miles, and its circumference, reckoning from Cape Despair round to Miscou, is 185 miles.

The northern or Canadian shore of the bay is of moderate

Chaleur Bay, General Character. height, but an irregular range of hills, of considerable elevation, is everywhere visible a few miles back from the coast, the predominating features of which are red cliffs of sandstone and shale, with intervening shingle and sand beaches. Trap rocks and limestone are occasionally met with also, but more sparingly. The southern or New Brunswick shore is, generally speaking, much lower, and for the most part composed of similar rocks; but between Bathurst and Caraquette the cliffs of red sandstone rise to the height of 200 feet above the sea. The sandstone either belongs to, or is very nearly connected with, the coal formation, fossil vegetable remains of which, as well as thin veins of bituminous coal, being not unfrequently met with.

Increasing settlements. There are increasing settlements all round the bay, and several harbours, roadsteads, and rivers, which will be presently more particularly mentioned, and which are frequented by numerous vessels engaged in the lumber trade and the fisheries.

Climate. The climate is warmer, and the weather in general much finer, within this bay, than it is outside in the adjacent parts of the gulf. The fogs, which prevail so much with southerly winds on the Miscou banks, seldom enter the bay, although rain and mist accompany easterly gales here as elsewhere.

Easy Navigation. The navigation is by no means difficult; for although there are some dangerous shoals, yet there is everywhere good warning by the lead.

Tides. The tides are regular within the bay, and seldom amount to the rate of one mile per hour; but outside, off its mouth, and especially on the Miscou banks, the currents and tidal streams are so irregular, both in strength and direction, that nothing definite can be said of them; and their dangerous effects upon the course of vessels can only be guarded against by the constant use of the deep-sea lead, and attention to the soundings.

Best line of entrance. Vessels bound for the Bay of Chaleur, and approaching its entrance in a dark night or foggy weather, should not attempt to make Point Maquereau, which is so bold that there is little or no warning by the lead; but should strike soundings on the Miscou banks, which extend nearly 22 miles to the eastward of Miscou Island. A cautious look-out should be kept for the numerous fishing schooners, which are generally riding on the banks; and the northern edge of the latter, being followed in 30 fathoms, will safely conduct vessels past the north point of Miscou, at the

distance of 4 miles, and form a sure guide up the bay. (See Art. 119.) The bank of soundings off the north shore is also sufficiently wide to guide vessels everywhere within Point Maquereau; nevertheless, in a dark night and bad weather, vessels had better not approach the shore much nearer than 30 fathoms in any part of the bay to the eastward of Carlisle Point. The soundings are generally of sand and shells on the banks, while in the central parts of the bay black and brown mud prevail, with depths between 30 and 50 fathoms. Within, or to the westward of Carlisle Point, and the opposite Bay of Nipisighit, the depth of water decreases to less than 30 fathoms, but there is still sufficient warning everywhere by the lead quite up to the head of the bay, as will be seen in the chart. *Soundings in Entrance.*

110. Cape Despair, and the Leander Rock, which lies off it, have been described in Chap. V. Art. 43. The course and distance from that cape to Point Maquereau are W.S.W. ¼ W. 23 miles. In the bay between them are Grand River, Little Pabou, Great Pabou, and Newport.

Grand River, 7 miles westward of Cape Despair, is a considerable stream, but has only two feet at low water over its bar. There is a village and a considerable fishing establishment there; and immediately to the westward of the river a shoal extends fully half a mile out from the shore. *Grand River.*

Little and Great Pabou are fishing-places, fit only for boats or very small craft. There is but a foot of water over the bar of the former at low water, and the ordinary spring tides do not rise over 5 feet. Great Pabou, which is a similar, but much larger place, had 5 feet over its bar at low water when we surveyed it, but the depth and situation of the very narrow channel change with easterly gales. *Little Pabou.* *Great Pabou.*

Newport, situated 3½ miles S.W. of Great Pabou, and 6 miles N.E. of Point Maquereau, is another fishing-place, where a small vessel or two may be moored, under shelter of a shoal, and at some risk,) to take in fish during the summer months. *Newport.*

Point Maquereau is of bold and dark-coloured craggy rocks. It is also wooded, and rises to about 200 feet above the sea. *Point Maquereau.*

111. Port Daniel, 7 miles west of Point Maquereau, is a fine bay, open to the eastward, and about 1½ miles wide and deep. In the northern corner of the bay, half a mile within White Point, which is high and of white limestone, a small river enters the *Port Daniel.*

Port Daniel. bay through a sandy beach, after descending a beautiful valley between wooded hills. There are many houses and stores near the entrance of the river, which will only admit boats at high water, being nearly dry when the tide is out. Supplies of wood and water may be obtained there, but fresh provisions are not plentiful. A shoal extends half a mile out from the shore all round the bay south-westward from White Point to West Point. West Point is of craggy grey limestone, with a high and remarkable semi-isolated rock at its S.E. extremity. It is the S.W. point of the bay, and bears S. ¼ W., 2 miles from the river's mouth. On the north side of it there is a small cove, and very good landing for boats.

Pillar Point. The points in order westward from Point Maquereau, and between it and the river, are Red Point, Pillar Point, and White Point, which will all be easily recognized; the first and last by their colour, and the other by a remarkable rock close off its extremity. The ground is not good outside the line joining Pillar and West Points. The best anchorage in the bay is in 6 or 7 fathoms, mud or clay bottom, in the line between White and West Points, with the entrance of the river N. ¼ W., and Red Point and Point Maquereau in one bearing E. ¼ S. The shelter will then be from east round by north and west to S.S.W., and in winds from between these points this bay affords safe and convenient anchorage. Strong S.E. winds roll in a heavy swell, but there is no difficulty in getting out on their approach, for the points are all bold, and in standing out or in vessels may safely pass West Point at the distance of two cables.

Best Anchorage.

Daniel Hill. About one mile to the westward of West Point is DANIEL HILL, of the estimated height of 400 feet above the sea, remarkable as the highest land close to the shore on this part of the coast. It serves to point out the situation of Port Daniel, as does also Red Point, which often appears like an island close to the shore.

Nouvelle River. NOUVELLE RIVER, 9 miles to the westward of Port Daniel, has only 2 feet over its bar at low water, and will be known by the fish stores and stages on the sandy beach on the east side of its entrance. The western side is formed by Nouvelle Point, which is a high cliff of red sandstone.

Paspebiac. PASPEBIAC, 5½ miles westward of Nouvelle River, and 21¼ miles W. by S. from Point Maquereau, is an excellent roadstead, and the principal fishing establishment in the Bay of Chaleur.

A triangular point of sand and shingle beach, inclosing a lagoon, extends out from the mainland to the distance of a mile, and has on its west side the extensive white buildings of the establishment of Messrs. Robin and Co., of Jersey, together with numerous huts belonging to the fishermen. On the west side of the sandy point, and close to the cliffs, the lagoon has an outlet, which has a rough bridge across it, and will admit boats at high water. In rear of this, the mainland rises gently from the edge of dark red sandstone cliffs, displaying fields of the richest green, and buildings, which, although straggling along the coast, are yet so numerous as to deserve the name of a town. There is an English Episcopal and a Roman Catholic Church, both are small, and of wood, and the latter stands furthest to the eastward. *Paspebiac.*

Carlisle, or New Carlisle, the county town, is 3½ miles to the westward of Paspebiac, and its jail and court-house, standing on the ridge in rear of Carlisle Point, are seen from the anchorage. Carlisle Point, which is wooded, and consists of sand, bears W. by N., 3½ miles from the sandy point of Paspebiac, and the roadstead is between them, but much nearer the latter. In this excellent and convenient anchorage vessels are sheltered from west round by north and east to S.E.; and although it is completely open to the S.W. winds, which send in a very considerable swell, yet the ground is so good that the Jersey vessels ride here moored all through the season without accident. The best anchorage is in 6 fathoms, clay bottom, with Robin's flag-staff and Single Tree Point (the extreme to the eastward seen over the sandy point) in one, bearing east, and the extremity of the sandy point S.E. A sandy spit extends under water rather more than half a mile to the westward from the sandy point, and nearly as far to the southward likewise. This assists in sheltering the roadstead, and is the only danger to be avoided in approaching it. *Carlisle.* *Paspebiac Roadstead.* *Sandy Spit.*

In running along the land from the eastward, the low sandy point of Paspebiac, with its white stores and numerous huts, will be seen stretching out from the mainland to the southward. When the vessel has passed Nouvelle River, and is approaching within 2 or 3 miles of the point, observe the following directions: Keep the summit of Daniel Hill open to the southward of Nouvelle Point until the Roman Catholic church opens to the westward of the south extremity of the sandy point, bearing N. by E. ½ E. Then *Directions.*

Paspebiac Roadstead.

haul up for Carlisle Point, with the lead going, till the above church and Robin's flag-staff (at his northmost large white store), come in one bearing N.E, ½ N. Haul in now boldly for the

Directions.

anchorage, only taking care not to open the same church out to the eastward of the flag-staff until Single Tree Point (the extreme to the eastward) is well shut in behind the sandy point, when the vessel will be within the spit, and a berth may be chosen by the lead at or near the position already pointed out. There is an excellent watering-place at a stream which will be seen falling from the cliffs just to the westward of the outlet of the lagoon. Supplies of all kinds may be obtained here, but to a limited extent. There is nothing in the way when approaching this anchorage from the westward, but in standing out from it with a westerly wind, and especially with a lee tide, the marks for clearing the spit to the westward must be carefully attended to. The Roman Catholic church should not be opened out to the eastward of Robin's flag-staff until Single Tree Point is well open to the southward of the sandy point; nor should the vessel bear up to the eastward of south before Daniel Hill comes open to the southward of Nouvelle Point.

Bonaventure Point.

113. Bonaventure Point, 5 miles westward of Carlisle Point, is formed by a low red sandstone cliff, with a thin superstratum of sand and clay containing tertiary shells. The Bonaventure River, with only 2 feet over its bar at low water, together with the village and church of the same name, will be seen in the bay,

Bonaventure Shoal.

2 or 3 miles to the northward of the point. A rocky shoal extends off this point to the westward fully a mile, and continues round the bay to the northward and westward nearly to Red Point,

Anchorage.

a distance of 7 or 8 miles. There is good anchorage under Bonaventure Point, with easterly winds, in 6 fathoms, mud bottom, with the point bearing S.E. ½ S., the church N.E. ½ E., and the entrance of the river E. ½ N., 1¼ miles. In the bay between Red and Black Points, and 5 miles to the N.W. of the

Caplin River and Reef.

former, is the small river Caplin, remarkable only for a reef which lies off its mouth half a mile from the shore.

Cascapediac Bay.

Cascapediac Bay, situated on the northern side, and near the head of the Bay of Chaleur, is of very considerable extent, being 13 miles wide, and 5 or 6 miles deep. At its head is the Cascapediac River, a very considerable stream, but which can only be

entered by boats, in consequence of the extensive shoals of sand and mud, which dry out 2 miles from its entrance, and occupy all the head of the bay. Black Point, bold and rocky, and rising to the estimated height of 400 feet above the sea, is the eastern point of the bay, bearing from Bonaventure Point N.W. ¼ N., 16 miles. The shoals commence about 1½ miles to the northward of Black Point, and at Indian Point, on the east side of Little River, they extend out to the westward nearly 1¾ miles, sheltering the anchorage from S.E. winds. *Cascapediac.* *Black Point.*

Duthie Point, the east point of entrance of the Cascapediac River, bears N.N.W. ¾ W., 5 miles from Black Point. One mile to the eastward of Duthie Point, and in the bay, between it and Little River, stand the church and village of Richmond. The anchorage, where the timber ships moor in 3 fathoms, is off the village, with Duthie Point bearing north three-quarters of a mile, the church N.E. ¾ E., and Black Point S.E. ¾ S. Vessels may anchor farther out in 4, 5, or 6 fathoms, on the same line of bearing from the church, or to the westward of it, but they will not then be so well sheltered from easterly winds. *Duthie Point.* *Richmond.* *Anchorage.*

In running for this anchorage from the Eastward observe the following directions. The marks for the south-western, or outer edge of the shoal off Indian Point, (already mentioned as sheltering the anchorage from S.E. winds), are Red Point a little open to the southward of Black Point, bearing S.E. ¼ E. Keep these marks therefore well open, as you run to the westward with the lead going, and go no nearer to the shoal than 5 or 4 fathoms, until the church bears N.E. by E. Then haul boldly in, steering directly for the church until you arrive at the anchorage already pointed out. *Indian Point Shoal.* *Directions.*

The settlements on the western side of the Cascapediac Bay are mostly of French Canadians and Acadians, and they extend alongshore all the way from the river to Tracadigash Point, which is the west point of the bay. In rear of the settlements, the Carleton Mountain range will be seen two or three miles back from the shore. *Carleton Mountain.*

114. CARLETON ROAD. This name has been given to an excellent and capacious anchorage safe in all winds. It is situated on the west side of Tracadigash Point, which consists of sand, inclosing a shallow lagoon, capable of admitting boats, or very small craft, at high water. On the northern shore of this lagoon stands the *Carleton Road.* *Tracadigash Point and Lagoon.*

Carleton. church and village of Carleton, the latter extending to the westward to the shore of the bay where the sand beach of the lagoon joins the mainland. A small stream, with a bridge across it, there enters the N.W. corner of the lagoon; and one mile farther to the westward, near the commencement of the clay cliffs, another small stream will be seen, which is the watering place.

Carleton Mountain. Immediately in rear of the village, the Carleton Mountain rises abruptly to the height of 1830 feet above the level of the sea,—the hills of the range trending from it both to the northward and westward for many miles.

Vessels may choose their berth for anchoring anywhere in from 5 to 6 fathoms, remembering that although the sandy beach of Tracadigash Point is quite bold on the west side within the spit, yet shoal water extends off the mainland to the distance of nearly half a mile. The best berth, especially in easterly winds, is in 5½ fathoms mud, with Tracadigash Point bearing S. by E. ½ E.; Carleton steeple E. by S.; and the watering place N. by W. ½ W.

Tracadigash Spit. TRACADIGASH SPIT, of sand, and running out half a mile to the S.W. from the sandy point of the same name, is the only danger in the way when approaching this anchorage from the eastward. Observe that Point Maguacha and the summit of Dalhousie Mountain in one, bearing W.N.W. ¼ W., pass the extremity of the Spit in 3 fathoms. Therefore, to clear it keep the mountain well open, or at night, go no nearer than 10 or 9 fathoms. As soon as Carleton steeple comes in one with the S.W. extreme of Tracadigash Point, bearing N.E. by E., the Spit will have been passed, and the vessel may haul in to the northward, going no nearer than 7 fathoms till the point bears to the southward

Tides. of east. The tides are weak in Carleton Roads, seldom exceeding one knot. Point Maguacha, of red sandstone cliffs, is the N.E. point of entrance of the River Ristigouche, and bears from Tracadigash Point W. ¼ N., 6½ miles. In the N.W. corner of the bay between them is Nouvelle Basin and River, nearly dry at low water.

Heron Island. HERON ISLAND, 5½ miles to the S.W. from Tracadigash Point, is of very moderate height, wooded, and with red sandstone cliffs at both its N.W. and S.E. points. Shoal water extends off both those points to the distance of 3 quarters of a mile; as it does also all along the northern side of the island, where the 3-fathoms mark is half a mile out from the shore.

The island is 4 miles long ,parallel to the coast, and there is good anchorage between it and the mainland; but the channel is rendered narrow and difficult by shoals, which extend a great distance out on either side. At the western end the passage is only 2 cables wide, and 3 fathoms deep. It becomes wider to the eastward, and deepens to 4 and 5 fathoms; but there the dangerous HERON ROCK lies nearly in midchannel, and consequently right in the way of vessels. On this small rock, which has 6 feet least water, and 4 or 5 fathoms all round it, the S.E. extreme of Heron Island bears E.N.E. one mile: the nearest sandy south point of Heron Island north, 600 fathoms: Beaver Point S.W. ½ S., 500 fathoms: a rock, 300 fathoms north of Beaver Point, and almost always above water, W. ½ S. 350 fathoms. This latter rock, which lies on the edge of the shoal off the mainland, is quite bold; and a vessel, by passing it within the distance of one or two cables, may clear Heron Rock to the southward, as she may also to the northward, by running along the southern edge of the shoal off the island, in 3 fathoms at low water. But this is an intricate and dangerous channel for a vessel of any size, and requires the aid of a good pilot. *Heron Island.* *Heron Rock.*

Vessels occasionally anchor, for the purpose of loading with timber, in the bay off Nash River, in 4 fathoms mud bottom, where they are much exposed to easterly winds, but the ground is so good that they ride safely during the summer months. At this anchorage the east point of Heron Island bears N. by W., 2½ miles; and Black Point N.W., a mile. Two miles to the eastward of that anchorage, 3½ miles S.E. of Heron Island, and 1½ miles north of Fowler Point, there is a ledge of rocks which had better be avoided: for although we found no less than 4½ fathoms, it is yet possible that there may be less water. The shoal water extends off Fowler Point a mile out to the 3-fathoms mark. There is also very good anchorage, in 4 fathoms mud bottom, to the westward of Heron Island, and nearly midway between it and the River Charlo. The River Charlo will only admit boats, and bears from the N.W. point of the island west 3¼ miles. *Nash River.* *Anchorage.* *Fowler Point.* *Rocky Ledge.* *River Charlo.*

115. RISTIGOUCHE RIVER, from its entrance at Point Maguacha, to where islands, shallows, and rapids terminate the navigation for all but canoes or bateaux, is an estuary or inlet of the sea, varying in breadth, for the first 17 miles, from 1½ to 3 miles. At that distance Campbell-town is situated on the southern or New Brunswick shore, and at the foot of a remarkable conical *Ristigouche River.* *Campbell-town.*

Ristigouche River.

mountain called the Sugar Loaf. Between Campbell-town and Indian Point, on the northen shore, where the Micmac Indians have a settlement, the breadth of the estuary is only half a mile; but it expands again to 1¼ miles at its head just below the islands. At Indian Point, a mile above Campbell-town, the navigation for shipping ends, there being only 12 feet in a narrow channel at low water; but small craft may ascend through very narrow passages, on either side, and from 6 to 9 feet deep, to within 3-quarters of a mile of the head of the estuary; where the River Ristigouche, properly so called, enters it through narrow channels between the islands, 21 miles from the head of the Bay of Chaleur.

Campbell-town.

Bar.

Off Loup River, which enters a bay on the northern shore 2 miles below Campbell-town, there is a shallow part of the channel called the bar, over which there is not more than 13 or 14 feet at low water; but the tide, which rises from 6 to 9 feet, enables vessels of the size of a sloop-of-war, or even a small frigate, to ascend to Campbell-town, off which they may moor in from 3 to 3½ fathoms at low water. Frigates may ascend at all times of the tide nearly to Oak Point, which is about 14 miles up, and within a mile of the bar; and the largest ships of the line might proceed 10 miles up, or nearly to Point Guarde, with the assistance of buoys and a good pilot. The Admiralty charts, and the directions which I shall presently give, will enable the intelligent seaman to take his vessel in as far as the harbour of Dalhousie, or the anchorage opposite off Point Fleurant: but, to proceed farther up, the services of a pilot should be engaged, for there are no good leading marks beyond the places which I have mentioned, where the shoals become too steep for the lead to give sufficient warning, and the channels too narrow for a large ship.

Valley of the Ristigouche.

Every channel and settlement near the shores, every mountain, cliff, and tributary stream, will be found so correctly represented in the Admiralty chart as to render any particular written description as unnecessary as it would probably be inadequate to convey a just conception of the scenery of the valley of the Ristigouche, which for grandeur and picturesque beauty may advantageously compare with any other part of the Gulf of St. Lawrence. Generally, however, it may be useful to remark, that on the northern or Canadian side the settlements are not numerous, and that the mountains rise to heights varying from 1000 to 1745 feet above the sea, at the distance of only 2 or 3 miles from the shore. On the southern or

New Brunswick side of the valley the wooded hills or ridges are much lower, although still of considerable elevation, the highest points being the Sugar Loaf, 950 feet high, and Dalhousie Hill, 715 feet above the sea. The settlements are increasing fast on this side; as are also the towns of Dalhousie and Campbelltown, where many vessels load annually with lumber. The Ristigouche offers a tempting field for the researches of the geologist and mineralogist. There are magnificent cliffs, 200 feet high, of variegated sandstones and conglomerates. The sandstones and shales often contain vegetable remains and traces of coal. Limestones, sometimes curiously altered by trap rocks, at others abounding with organic remains, are occasionally met with; and there are amygdaloidal trap rocks abounding with zoolites, jaspers, cornelians, and agates. These last-named minerals, together with fragments of petrified wood, are found among the pebbles of the beaches more or less all over the Bay of Chaleur, and especially at Paspebiac. They are known by the name of Gaspé Pebbles at Quebec, where they are worked up into ornamental articles of jewellery.

Valley of the Ristigouche.

Sugar Loaf and Dalhousie Hill.

Previously to giving directions, and with the view of rendering them more intelligible, I shall briefly describe the entrance of the Ristigouche, the harbour of Dalhousie, and the dangers to be avoided.

The entrance of the Ristigouche, between Point Maguacha, and the Bonami Rocks, is nearly 2 miles wide. The rocks bear W. ¼ N. from the point: they are steep and high, and so rough and broken, that a stranger would be led to expect danger on their side, instead of on the opposite, where the steep red cliffs of Point Maguacha give the usual, although in this case deceptive, indications of a clear channel.

Ristigouche Entrance.

The Maguacha Spit, of sand and stones, with only 6 feet at low water, runs out from Point Maguacha very nearly a mile to the west, or towards the Bonami Rocks, thus occupying fully half the channel. To clear the S.W. extreme of this steep and dangerous spit, keep the highest summit of the Scaumenac Mountains open to the S.W. of Dalhousie Island: for the summit of the mountain, and the south side of the Island in one, bearing N.W. ¼ W., lead over the extreme end of the Spit in 3½ fathoms: (See chart and view.) The eastern side of the Spit will be avoided by not entirely shutting in the south extreme of the Carleton Mountains behind the east side of Point Maguacha.

Maguacha Spit.

Clearing mark.

Bonami Rocks. The extreme point of the Bonami Rocks may be safely passed within the distance of 2 cables; but shallow water extends from the rocks to Bonami Point, from which a reef runs a quarter of a mile, and the shoal continues from it to Dalhousie Island.

Dalhousie Island. DALHOUSIE ISLAND, 200 fathoms long, is high and rocky, round-backed, and wooded, and joined by a shoal that dries to the low point of Dalhousie. On that point there are large storehouses belonging to the town of Dalhousie, which with its church, will be seen beautifully situated on the side of a hill to the S.W. of the island. Three hundred fathoms to the westward of Dalhousie Island there is a small rocky islet, at the extremity of a narrow sandy spit, forming the western side of the small and shallow bay of Dalhousie. The shallow water extends from the islet to the island, and the timber-ships lie moored along its edge, in 6 or 7 fathoms muddy bottom, directly off the town. This is Dalhousie Harbour, which is perfectly secure in all winds.

Dalhousie Harbour. DALHOUSIE HARBOUR may be approached in two ways, either through the direct but narrow channel between the Middle Ground and Dalhousie Island, or round to the northward and westward of the Middle Ground; which last, although it involves the necessity of passing over a flat of 3 fathoms at low water, is the route usually taken, because of there being plenty of room there, whereas the channel first mentioned is only 150 fathoms wide. The narrow channel has, however, the advantage of good leading marks, and is 6 fathoms deep.

Middle Ground. THE MIDDLE GROUND, separated from Dalhousie Island by the narrow channel just mentioned, is 550 fathoms long, in a N.N.E. direction, and 400 fathoms wide. It consists of sand and stones, with six feet least water; and is very steep on its eastern side, where a buoy is placed near its N.E. point. There are no sufficient leading marks, but beacons might be easily so placed on the shore as to clear it on every side. The main channel between this shoal and the Canadian shore to the northward and eastward is more than 3-quarters of a mile wide, and in some places 15 fathoms deep. The rate of the tide, which is stronger there than elsewhere, does not exceed 2 knots.

Tides.

Entrance to the Ristigouche. The directions for entering the Ristigouche and harbour of Dalhousie with a leading wind are as follow. Being midway between Heron Island and Tracadigash Point, steer for Dalhousie

Directions.

Mountain, or about W.N.W. When within a mile or two of Point Maguacha, bring the marks on for clearing the Maguacha Spit; namely, the highest summit of the Scaumenac Mountains open to the S.W. of Dalhousie Island. Stand in upon these marks until you come into 9 or 8 fathoms on the New Brunswick shore, which will be when the Bonami Rocks bear about S.W., and are distant about half a mile. You must then haul to the northward, so as to keep in that depth until Point Lime (the extreme point to the westward on the New Brunswick shore) becomes just open to the northward of Dalhousie Island and of the islet and rocks to the westward of it, bearing W. by N. Then, if you wish to enter the harbour by the narrow channel to the southward of the Middle Ground, steer W. by N. upon those leading marks until you approach Dalhousie Island, which leave to the southward or on your left, at a distance of 50 or 100 fathoms, and you will pass safely into the harbour. But, if you prefer the more roomy route to the northward of the Middle Ground, instead of steering W. by N. for Point Lime as soon as it opens to the northward of the island (as has been just before described), sheer over to the N.E. until you strike soundings in 8 fathoms on the Canadian shore, and follow that depth round to the northward and westward until Dalhousie Church opens out to the westward of the island bearing S.W. by S. Then steer west, or directly up the estuary, until Dalhousie Church appears midway between Dalhousie Island and the islet to the westward of it, bearing S. by W. Steer now for the church, taking care not to bring it to bear to the westward of S. by W., and you will pass over the extensive 3-fathoms flat, to the westward of the Middle Ground, into the harbour.

Entrance of the Ristigouche to Dalhousie Harbour.

Directions with leading Winds.

The most convenient anchorage for men-of-war, or other vessels visiting the Ristigouche for supplies of wood or water, is off Point Fleurant on the Canadian shore, and about 2 miles to the northward of the harbour. There a vessel may get under-way in all winds, and at all times of tide; and no other directions are necessary than to anchor anywhere off the point in 6 or 7 fathoms at low water. There is a tolerably good watering place at a brook half a mile to the westward of the point, and a little farther westward the Mussel Bank, a dangerous reef, extends out from the high cliffs nearly half way across the estuary.

Point Fleurant Anchorage.

Mussel Bank.

It now only remains to give some few directions for beating

With beating winds.

Dalhousie, with beating winds.

winds. In the board to the northward, towards Tracadigash Spit, that danger will be avoided by keeping Dalhousie Mountain open to the southward of Point Maguacha. To the westward of the Spit vessels may stand in to 6 fathoms, but there will be no use in standing in to Carleton or Nouvelle Bay out of the strength of the tide. On the Heron Island side, observe that the highest summit of the Scaumenac Mountains and the southern side of Dalhousie Island touching, clear the shoal water to the northward of Heron Island in 4 fathoms. Tack therefore in the board to the southward when the mountain comes in one with the *northern* side of the island, or by the lead in 6 fathoms. You will be clear of the reef off the west end of Heron Island when the River Charlo bears to the southward of S.S.W.; and may then stand to the southward into 4 fathoms, as long as the east side of Point Maguacha does not bear to the eastward of N.E. by N.: after which you should tack in the board to the southward in 7 fathoms, because the flat

Eel Bay Flat, and Bonami Rocks.

of from 2½ to 3½ fathoms in Eel Bay becomes rather steep as we approach the Bonami Rocks. Those rocks may be approached to 7 fathoms, and when they bear W. by S., you will be within the point of the Maguacha Spit, which must be avoided by means of the leading marks already given. From the Bonami Rocks to Dalhousie Island you may stand in on your board to the S.W. into 8 fathoms, but go no nearer to the east side of the Middle Ground than 10 fathoms, and that with great care, for it is very steep. Its northern side may be approached to 9 fathoms. On the board towards the Canadian shore you may stand in to 9 fathoms between

Yacta Point, and Shoal.

Maguacha Spit and Point Yacta, which last, observe, has a very steep shoal off it to the distance of 300 fathoms. To the N.W. of Point Yacta you may safely stand to the northward into 6 fathoms all the way to Point Fleurant.

116. There is nothing that need long detain us in our review of the coast as we return to the eastward along the southern side of

Belledune Point.

the Bay of Chaleur. Belledune Point, 13 miles S.E. from Heron Island and the extreme seen from it, is low and sandy, and has shoal water off it to the eastward 3-quarters of a mile. Turning to

Nipisighit Bay. Rochette.

the southward at this point into the great Bay of Nipisighit, a distance of 8 miles brings us to the church and village of Rochette; and 8¾ miles farther in the same direction to the entrance of the Nipisighit River at the head of the Bay. The whole of this coast is low, and composed of sandstone, limestone, and trap rocks. The

shoal water generally extends to ¼ mile from the shore; and large vessels had better not stand nearer than 10 fathoms, especially at night, unless it be in the head of the bay, where they may safely approach the sandy beach to 7 or 6 fathoms. *Nipisighit Bay.*

Bathurst Harbour, at the mouth of the Nipisighit, is 200 fathoms wide at the entrance between Alston and Carron Points, which are of sand, with several stores and other buildings upon them. On Carron Point, which is on the S.E. side, there are two beacons, which, if kept in one, bearing S.W. ¼ S., will lead in through the narrow channel over the bar in 7 feet at low water, or in 14 feet at high water in the best spring tides. The distance from the outside of the bar in 3 fathoms to the entrance of the river is 1¼ miles; and for the whole of that distance the very narrow channel is between sandy shoals, nearly dry at low water, and extending from either side of the river's mouth. In the entrance between the sandy points, or rather just outside it, there are 3 and 4 fathoms; and here the vessels usually moor to take in timber, sheltered by the bar and the sandy shoals on either side. Some of the smaller vessels load within the entrance; and some of the larger ones complete their loading outside the bar, where the anchorage in 6 or 7 fathoms, muddy bottom, is considered safe in the summer months, although the N.E. gales send in a heavy sea. Within the entrance there is an extensive and perfectly sheltered basin, nearly 3 miles long by 2 miles wide, but nearly all dry at low water, excepting the channels of the four rivers, which, after uniting their streams below Bathurst, flow through it to the entrance, forming by their junction what is called the Main Channel. On the eastern side of the basin there is an islet called Indian or Bathurst Island. The town of Bathurst is well situated at the head of the basin, 2½ miles within the entrance, and on the point of land which divides the River Nipisighit from the Middle and North Rivers. *Bathurst Harbour.* *The Bar.* *Inner and Outer Anchorages.* *The Basin.* *Bathurst Town.*

A depth of 14 feet at high water in spring tides can be carried up to the wharfs of the town, and in the main channel there are several places where vessels may lie afloat and load in 14 feet at low water. The rate of the tides in the main channel is about 2 knots, and over the bar about 1½ knots. The stream sets fair in and out and over the bar. There are good pilots for this river, and no one should attempt the bar without one, excepting in case of necessity. *Tides.* *Pilots.*

Point Peter. Half a mile to the westward of the town, and across the mouth of the Middle and North rivers, is Point Peter with its church and village of Acadian French, and on the north side of that point the

Tetagouche River. River Tetagouche enters a bay on the N.W. side of the basin. These streams are all unnavigable for any distance: even the

Nipisighit River. Nipisighit, which is by far the largest, and a very considerable river, ceases to be navigable 1¼ miles above Bathurst, where the tide ends, and rapids begin.

There is nothing in the way of vessels along the coast from Bathurst Harbour to Point Mizzenette, a distance of 29 miles, excepting a 3-fathoms shoal, 3-quarters of a mile offshore, a mile

Norton Shoal. to the westward of Norton Point, and 9 miles eastward of the Nipisighit. The coast, which for the most part is of high sandstone

Mizzenette Point. cliffs, becomes very low as we approach Point Mizzenette; and about 3 miles to the westward of that point, where the sandy cliffs end, the shoal water extends to half a mile from the shore: but in general it does not extend to more than half that distance, and the coast may everywhere be approached by the lead to 10 or 12 fathoms with care, the greater depth being quite near enough at night-time. There are settlements all along the coast, and vil-

Pokeshaw. lages and fishing establishments at Great Anse and Pokeshaw.

Great Anse. Great Anse, where there is a church, is 8 miles, and Pokeshaw 11 miles, westward of Point Mizzenette. There are small bays at both places where boats find shelter, and a small river at Pokeshaw.

Caraquette Harbour. 117. CARAQUETTE, although an excellent harbour for vessels of the size of a sloop-of-war, and even capable of affording anchorage to much larger vessels, is nevertheless an exceedingly danger-

Approach Dangerous. ous place to a stranger. The approach to it is between shoals extending several miles from the shore, and there are neither beacons, buoys, nor competent pilots: hence, although 4 fathoms can be carried in at low water sufficiently far for the largest frigates to be anchored in perfect safety in that depth, yet I cannot recommend even a sloop-of-war to attempt this harbour unnecessarily, nor unless the circumstances of wind and weather be very favourable, with a flowing tide, and her boats ahead. Under such favourable circumstances the passage into the harbour will be attended with little risk to smaller vessels prudently conducted, and having the assistance of the Admiralty Charts in addition to the directions with which I shall presently conclude a brief explanatory description of the place. All the former charts of this

place, as well as of the neighbouring harbours of Shippigan and Miscou, are totally erroneous.

CARAQUETTE ISLAND is nearly 3 miles to the E.S.E. of Point Mizzenette, the western point of Caraquette Bay. There is no passage between them for shipping; only a narrow channel for boats, or very small schooners, on the side next the island. The island is of sandstone, low and wooded, and 1¾ miles long in a direction nearly parallel to the coast. Sandy points extend from both ends of the island towards the mainland, or to the southward, so as to form a bay, in which there is a perfectly landlocked anchorage for vessels not drawing more than 15 feet of water. The island stands on an extensive bank of flat sandstone, partially covered with sand, and which, commencing at Point Mizzenette, extends to the eastward parallel to the coast all the way to the entrance of Shippigan Sound, a distance of 8 or 9 miles. *Caraquette Island.*

THE CARAQUETTE SHOAL is that part of the bank just mentioned which extends 4¼ miles to the eastward of the island, from which it dries out occasionally in very low tides to the distance of 2 miles, and is very shallow in every part. On its east end Caraquette steeple and the S.E. extreme of the trees of Caraquette Island are in one, bearing W. ¼ S.; and Shippigan steeple and Point Pokesuedie bearing South. The last-named marks in one clear this shoal to the eastward in three fathoms at low water; but a large ship, requiring a greater depth of water, would have to pass farther to the eastward by keeping Points Marcelle and Pokesuedie in one, bearing S. by W. ¾ W., as will be presently directed. *Caraquette Shoal.*

MIZZENETTE LEDGE of rocks, with 5 feet least water, lies on the western part of the same bank, and near its northern edge. It bears N.N.W. 1¼ miles from the west end of Caraquette Island, and will be cleared to the northward, in 3½ fathoms by keeping Donax Point just open to the northward of Point Mizzenette, bearing W.N.W. ⅜ W. These marks will also lead to the eastward along the northern edge of the Caraquette Shoal until they strike Scollop Patch, which has 16 feet least water over a rocky bottom; and on which the N.W. extreme of Caraquette Island and Caraquette steeple are in one, the S.E. extreme of the island bearing S.S.W. ¼ W., distance nearly 2 miles. The marks for clearing the northern edge of the Caraquette Shoal, to the eastward of Scollop Patch, and in 3 fathoms water, are the south *Mizzenette Ledge.* *Scollop Patch.*

Caraquette Shoal.

extreme of Miscou Island kept plainly open to the northward of the north point of Shippigan Island, bearing E. ¼ S. But those marks are low and distant, and often not well defined, therefore they should not be trusted alone, neither will they be required if the northern edge of the shoal be not approached nearer than the depth of 4 fathoms at low water.

Fisherman Ledge and Channel.

FISHERMAN LEDGE is a detached bed of rocks, with 10 feet least water, lying to the northward of the Carraquette Bank, and separated from it by Fisherman Channel, which is a mile wide and from 4 to 7 fathoms deep. This dangerous ledge, which lies more in the way of vessels than any other in the Bay of Chaleur, is 1¼ miles long in an E. ¼ S. direction, and a third of a mile wide from 3 fathoms to 3 fathoms. There are no marks for it. Its northern edge is distant 3 miles from Caraquette Island, and its east and west ends bear N.N.E. from the corresponding points of the island. The points of cliff at Great Anse and Donax Point in one, bearing W. by N., lead through Fisherman Channel, which however we have not examined very closely, and should not in any case recommend to large vessels.

Pokesuedie Shoal.

POKESUEDIE SHOAL is an extensive flat of sand extending 2 miles to the northward and eastward from Pokesuedie Island, and having only 6 or 7 feet water over the greater part of it. Caraquette steeple and the sandy S.E. extreme of Caraquette Island in one, bearing W. ¼ S., lead over its north point in 2 fathoms at low water; and if the steeple be kept half-way between the extreme of the sandy point, and the extreme of the trees on the same island, the north point of the shoal will be cleared in 4½ fathoms.

Caraquette Harbour.

CARAQUETTE CHANNEL, between the Pokesuedie and Caraquette shoals, forms the entrance to the harbour of Caraquette for a distance of 2½ miles, and has water enough for the largest ships; but it is crooked, and only 220 fathoms wide between very steep shoals, and without sufficient leading marks: hence it becomes a very difficult channel, as before observed.

Caraquette Harbour.

THE HARBOUR OF CARAQUETTE may be said to commence immediately within, or to the westward of Pokesuedie Island, extending westward between the mainland and Caraquette Shoal and Island. The Church of Caraquette will be seen standing conspicuously on the ridge nearly opposite to Point Mizzenette, and the houses and fish stores of Lower Caraquette nearly opposite to the island. In the eastern part of the harbour

immediately within Pokesuedie, the depth is 5 and 6 fathoms; and there is not less than 3½ fathoms till we approach within half a mile of the S.E. point of the island. Between the island and the main the channel is only 120 fathoms wide and 2½ deep; but farther westward it increases to a quarter of a mile wide and 4½ fathoms deep, and is there sheltered by the Mizzenette Sands, which dry at low water nearly across to the island. The bottom is of mud within the harbour, and of sand in the entrance, or Caraquette Channel. The Bay of Caraquette extends 4 or 5 miles to the westward of Point Mizzenette, being all shoal water except the narrow channel of the harbour, and terminating in the two shallow rivers, the South, and the North, in the mouths of which there are oyster-beds. The best watering-place is at a small stream, which descends the steep banks at Upper Caraquette near Point Brideau. *Caraquette Harbour.* *Caraquette Bay.* *South and North Rivers.* *Watering-place.*

To enter the harbour of Caraquette attend to the following directions, observing that winds from N.W. round by N. and E. to S. by E. are fair for going in. First.—In a vessel from the eastward. Having brought the entrance of Miscou Harbour to bear to the eastward of south, stand in towards it to 8 fathoms: then run to the westward in that depth until the N.E extreme of the trees of Shippigan Island opens to the southward of the S.W. extreme of Miscou Island, bearing S.E. If the weather be clear Caraquette steeple will then be seen in one with the north extreme of Caraquette Island bearing W.S.W. ½ W. From the position just indicated steer S.W. ½ W., or for Point Blanchard, the wooded north extreme of Pokesuedie Island, which you may or may not be able to make out, as it is on with the mainland, and distant 7 or 8 miles. However, keep the lead going, and do not approach the great Flat of Shippigan nearer than 7 fathoms, and when you have run about 3½ miles, you will bring Point Marcelle, the wooded S.E. extreme of Pokesuedie Island, in one with Pokesuedie Point, which is the sandy east extreme of the same island. These points in one, bearing S. by W. ½ W., clear the N.W. extreme of the Shippigan Flat, leaving it to the eastward at the distance of half a mile. Steer for those points in one, until Caraquette steeple comes in one with the S.E. extreme of the trees of Caraquette Island, bearing W. ½ S.; immediately after which, or when the north extreme of Shippigan comes in one with the south extreme of Miscou, bearing E. ½ S., change the course *Directions.* *Approaching from the Eastward.* *Point Blanchard.* *Point Marcelle.*

Caraquette Harbour. Directions.

towards Point Blanchard bearing S.W. by W. ½ W.* When you have run not quite 1½ miles towards Point Blanchard, Shippigan steeple will come in one with Point Pokesuedie, bearing south; and at the same time, or immediately afterwards, Caraquette steeple will be in one with the sandy S.E. extreme of Caraquette Island bearing W. ½ S. You will now be within the entrance of the

Caraquette Channel.

Caraquette Channel, between Caraquette and Pokesuedie Shoals, and must haul to the westward immediately for Caraquette Steeple, keeping it carefully in one with the sandy S.E. extreme of Caraquette Island, until the Windmill on Point Alexander (Shippigan Island) comes in one with Pokesuedie Point, bearing S.S.E. ½ E., when you must instantly change the course to S.W. by W. ½ W. You are now about to pass through the narrowest and most difficult part of the channel, and must pay strict attention to the course, and have a lead going on both sides. If you shoal your water to less than 4 fathoms, after you have run upon the S.W. by W. ½ W. course from a quarter to half a mile, it will be on the Pokesuedie side, and you must therefore sheer to the northward a little, or into 5 fathoms, and then resume the S.W. by W. ½ W. course again until Caraquette Steeple comes in one with the cliff of Point Brideau, bearing W. ½ N. Change the course again immediately the last-named marks come on, and steer for them for 3-quarters of a mile, then sheer to the southward a little, so that the steeple may be seen a little within and over the extremity of the point, or in one with the store upon it: keep it so until the cliffy points on the N.E. side of Caraquette Island are all shut in behind the east point of the island, and it will have led you clear of the south extremity of the Caraquette Shoal. The vessel will now be in safe anchorage, and a berth may be chosen at pleasure with the assistance of the chart, and in from 4 to 2½ fathoms at low water. The tide rises from 3 to 6 feet, and its rate seldom exceeds 1 mile per hour.

Tides.

Directions. Approaching from the Westward

Large vessels from the westward should pass outside of Fisherman Ledge, not going to the southward into a less depth than 6 fathoms at low water until Points Marcelle and Pokesuedie come in one, bearing S. by W. ½ W.; they should then haul

* In order that neither tide nor lee-way may set you out of the straight course towards Point Blanchard, take care neither to open out nor to shut in the trees or other object which you may select as a mark on the mainland beyond the point.

in upon those leading marks, and proceed as before directed. A small vessel may pass through Fisherman Channel guided by the leading marks, and the remarks which have been given under the heads Caraquette Shoal, Mizzenette Ledge, and Fisherman Ledge. She need not run so far to the eastward as a large vessel, but as soon as Shippigan Steeple comes on with Point Pokesuedie, bearing south, she may haul in upon those leading marks, which will take her over the tail of Caraquette Shoal in 3 fathoms; and as soon as the Steeple of Caraquette comes in one with the sandy S.E. extreme of Caraquette Island, bearing W. ¼ S., she must steer for them and proceed as before directed. A person acquainted with the appearance of the objects given as leading marks will find little difficulty, when the weather is favourable for seeing them, in following out these directions. Perhaps Point Brideau will be the most difficult to make out, but it is very well described in the chart, and the conspicuous store upon it, and the small bay on its east side, will assist in pointing it out to strangers.

Caraquette Harbour. *Fisherman Channel.* *Point Brideau.*

118. SHIPPIGAN SOUND, formed by Pokesuedie Island and the mainland on the west, and by Shippigan Island on the east, is a very extensive place, as will be seen in the chart. On the western side, within Pokesuedie Island, is Simon Inlet, the best harbour in the Sound. Within its entrance, between Points Marcelle and Brulé, the anchorage is perfectly land-locked, with water sufficient and space enough for the largest ships. On the opposite or Shippigan side are the bays of Alemek and Little Alemek. The latter is a shallow place, but has good anchorage off its mouth. The former, which is most to the southward, and by far the largest bay of the two, is an excellent harbour with 3 and 4 fathoms water, and perfectly secure in all winds. There is a church and village of Acadians at the head of this bay; and on Point Alexander, its north point, stands the establishment of Mr. Alexander, and the windmill referred to in the directions for Caraquette. There is a bar of sand and mud extending across the Sound from Point Alexander to Point Brulé, which limits the depth that can be carried into Alemek Bay to 2¾ fathoms; and into Shippigan harbour to 2½ fathoms at low water. On the mainland, nearly opposite the south point of Alemek Bay, there is a windmill on Point Bernache, the sandy north point of Basse bay, which is small and shallow. On the south point of this bay, ¾ quarters of a mile to the southward of the windmill just mentioned,

Shippigan Sound. *Simon Inlet.* *Alemek Bay.* *Point Alexander.* *Point Bernache.*

Shippigan Harbour. stands the church and village of Shippigan; and off them is the harbour of Shippigan, a narrow channel from 2½ to 4 fathoms deep, and between shoals of mud and eel-grass nearly dry at low water. This narrow channel continues 2½ miles beyond the church, terminating at Shippigan Gully, the southern entrance of the Sound. The Gully is used by shallops and fishing-boats. The tide is generally extremely rapid in it, and there is often a heavy surf on its bar of sand, which dries in part at low water, leaving a channel only 4 or 5 feet deep. The harbour of Shippigan is perfectly secure in all winds, and it is there that the greater part of the vessels, which have recently begun to visit the place for timber, lie moored. The watering-place is at a small stream in Basse Bay, a short distance to the westward of the church.

Shippigan Gully.

Watering-place.

Shippigan Channel. SHIPPIGAN CHANNEL, leading into the Sound from the northward, is still more difficult than Caraquette Channel. The water is deep, but the passage is narrow and crooked, and without leading marks. For 3 miles, the breadth of the channel between the Pokesuedie and Shippigan Shoals, which are exceedingly steep, is only from a quarter to a third of a mile. Three or four buoys judiciously placed would render the channel safe and easy, but without them it is very difficult. In 1838 there was only one pilot, Mr. De Grasse of Shippigan, capable of taking a large vessel in or out. The whole distance from the great Flat to Shippigan Church is nearly 9 miles, and the navigation is difficult all the way. No directions, which I could give, would enable a stranger to take a large vessel into the Sound without very considerable risk of getting on shore; but a vessel not drawing more than 12 feet may be taken in by the lead in fine weather, and with the assistance of the Admiralty Chart, as follows:

Difficult Navigation.

Directions. Bring Point Marcelle and Pokesuedie in one, bearing S. by W. ¼ W., and steer for them. After passing the west end of the Great Flat you will have from 9 to 7 fathoms in the channel, decreasing the depth of water as you approach the Pokesuedie and Caraquette shoals. As soon as you arrive at the depth of 5 fathoms change your course to S. by E., or so as may be necessary to follow the eastern side of the Pokesuedie shoal in that depth, until Caraquette steeple is open clear to the southward of the sandy S.E. extreme of Caraquette Island: you will then have arrived at the entrance of the narrow part of the channel between the Pokesuedie and Shippigan shoals, and, if the wind be from the eastward, you had better haul over to the weather-side into

5 fathoms, and follow that depth along the edge of the Shippigan shoals by the lead as before; but, if the wind be from the westward, follow the edge of the Pokesuedie shoal in the same manner. The mode of proceeding which I have just recommended would prevent a vessel from mistaking the side of the channel which she might be on, and from which the greatest danger of running on shore would arise. The depth of water in the channel varies from 6 to 9, and, in one place, to 12 fathoms over sandy bottom, but changing to clay and mud as you advance into the Sound. *Shippigan Channel.*

It would require a much longer experience than was afforded us by the few weeks employed in the survey to make us fully acquainted with the set of the tides in the entrance of the Caraquette and Shippigan Channels, where they doubtless change with the time of tide and other circumstances. The rate of the tides, however, seldom exceed a knot even in the channels, where, of course, they are stronger than elsewhere. In Shippigan harbour the stream was very regular in fine weather, running in at the Gully, and to the northward, through the Sound, into the Bay of Chaleur, from about half-ebb to half-flood by the shore, and in the reverse direction, or to the southward, from about half-flood to half-ebb. The time of high water on the full and change days is at 3 hours 40 minutes, which is about an hour later than at Caraquette and Paspebiac. The rise in ordinary spring-tides is 5½ or 6 feet, and in neap-tides 3 feet. *Tides.*

SHIPPIGAN FLAT is an extensive shoal of sandstone, thinly and partially covered with sand, and having in some parts not more than a fathom of water. It is the most northern of the Shippigan shoals, and extends 2¾ miles off the north side of the island, separating the channel leading to the harbours of Caraquette and Shippigan from that which leads into Miscou harbour. The marks which I have given for clearing this shoal to the westward will be made out without difficulty; and there is good warning by the lead all along its northern side, which may be safely approached to 6 fathoms in a large ship, and to 3 fathoms in a small vessel. *Shippigan Flat.*

119. MISCOU HARBOUR, frequently called Little Shippigan by the fishermen, lies between Miscou and Shippigan Islands, and just within the sandy spit at the S.W. extreme of Miscou, where the space of deep water (from 4 to 6 fathoms), forming the *Miscou Harbour.*

Miscou Harbour. harbour for large vessels, is 200 fathoms wide, and upwards of a mile in length. The harbour for small craft is more extensive, there being a considerably greater breadth with 2 and 2½ fathoms of depth, and also a narrow channel extending eastward through the flats of mud and weeds to within a mile of Miscou Gully, which boats can only enter at high water. The bottom within the harbour is soft mud; in the channel, just outside the entrance, sand; and between the shoals, farther out, sandstone. This harbour is greatly frequented by the American fishermen, many of whom must be better pilots for it than any other persons. The Miscou Channel, leading to the harbour, between Shippigan Flat and the Shippigan shoals, on the S.W., and the Miscou Flats on the N.E., is even still more difficult for a large vessel than the Shippigan Channel, being in one part only 170 fathoms wide, between shoals so steep that there is not the slightest warning by the lead. In short, none other than small vessels should attempt this harbour without having first buoyed the channel, or secured the assistance of a competent pilot.

Gully.

Miscou Channel.

A vessel drawing 12 feet of water may however run in with the assistance of the Admiralty Chart, and the following brief directions:—If to the eastward of the harbour, cross the Miscou Flats to the S.W., at the distance of 3 miles off shore, in not less than 4 fathoms: if to the westward, follow the northern edge of the Shippigan Flat, in 4 or 5 fathoms. In either case open out the N.E. extreme of the trees of Shippigan Island, just clear of the S.W. extreme of the trees of Miscou Island, or keep the former in one with the extreme of the sandy spit at the S.W. end of Miscou Island, the latter being preferable if it can be made out. These marks will bear a little to the eastward of S.E.: steer for them until you shoal to less than 4 fathoms, which will be on a point of the Miscou Flats. Sheer to the S.W. for about a quarter of a mile, or so as to deepen your water to 4 and 5 fathoms; then steer S.E. ½ S., or for Pandora Point, a wooded extreme of Shippigan, half a mile within Pecten Point, which is the sandy south point of entrance of the harbour. In running this course you will cross a bay in the Miscou Flats in 4 and 5 fathoms: if you deepen to more than the latter depth at low water, sheer to the eastward, for the object is to keep on the Miscou and least dangerous side of the channel; and that will be effected without difficulty by the lead, since there is 8 and 9 fathoms in the

Directions.

channel. After running a short mile towards Pandora Point, as just described, you will observe the points on the north side of Shippigan come in one, bearing W.S.W. ½ W.; and about the same time a high sand-hill, on the sand-bars at the head of the harbour, will come on with the high-water extreme of the sandy spit of Miscou, bearing S.E. by E. ½ E. You will now have arrived at the narrow part of the channel, and must follow the edge of the Miscou Flats by the lead, in from 4 to 6 fathoms, sheering to the eastward the instant you have more than the latter, and to the westward when you have less than the former depth. The general direction of your course will still be towards Pandora Point, until the points on the S.E. shore of Miscou within the harbour open out, bearing E.N.E. ½ E., when you will be in safe anchorage, although outside the entrance. If, however, you wish to proceed farther, you must haul up for the high sand-hill on the sand-bars already mentioned, which will be about E.S.E. ½ E.; and when within the sandy points, steer about East, or for the Gully, for a short distance, choosing your berth at pleasure. *Miscou Harbour.*

We were not long enough at Miscou to collect much information respecting the tides, but they appeared to set fairly in and out of the harbour, at a rate seldom amounting to a knot. It was high water at the full and change days at 3½ hours, and the rise was 5 feet in spring-tides, and 3 feet in neap-tides. *Tides.*

The 5-fathoms edge of the Miscou Flats is fully 4½ miles off to the N.W. of the S.W. point of Miscou, and there is not more than 3 fathoms at the distance of 2¼ miles from the same point. These Flats, which are of sandstone, continue 4 or 5 miles to the N.E. of the harbour; and near their northern termination there is an opening in the trees which extends across the island, and which has been mistaken by vessels, at night or in foggy weather, either for the harbour or the Gully, according as they were west or east of the island. The remainder of the shore is tolerably bold, with steep sandy beaches, which surround the north end of the island, where several stores and huts of the fishermen will be seen along the shore. The north point is distinguished by a green mound, or grassy sand-hill, and the shallow water does not there extend to more than a third of a mile offshore; but a sandy shoal commences immediately to the eastward of the point, and fronting the outlet of a small lagoon, where there are several *Miscou Flats.* *Deceitful Gap in the trees.* *North Point of Miscou.*

Miscou North East Shoal. fishing-stores and huts, stretches off a mile to the N.-Eastward. At that distance from the shore there are 3 fathoms, but it is more than 2½ miles out to the 5 fathoms edge of the shoal.

Birch Point. About 1½ miles round to the S.-Eastward from the north point is Birch Point, a steep cliff of sandstone about 10 feet high, and which will be easily recognized by the white birch-trees, which are higher there than in any other parts near the shore. A reef of stones and sand extends there half-a-mile out from the shore. The soundings in the Chart will enable any one easily to avoid the shoal off the north point, either by night or by day. There is very good anchorage on either side of it; under the north point in from 5 to 10 fathoms, in southerly winds, and off Birch Point, in from 3½ to 6 fathoms, in westerly winds—the bottom being of sand, which holds sufficiently well for offshore winds.

Miscou Banks. The Miscou Banks extend about 22 miles to the eastward of Miscou, as will be seen in the Chart, and the soundings upon them will afford full and sufficient guidance for a vessel approaching this part of the coast, as has been remarked in the first Article of this Chapter. The shoalest part of the banks will be found on an east line of bearing from Birch Point, whereon, for the first 6 miles off shore, there are only from 5½ to 7 fathoms on a rocky bottom; after which the water deepens rapidly, there being from 12 to 17 fathoms with red sand, rock, and shells for the next 9 miles, at the end of which it deepens to 20 fathoms; 7 miles farther, with depths between 20 and 30 fathoms, over red sand, gravel, shells, and broken coral, brings us to the edge of the bank, where the depth increases rapidly to above 40 fathoms, and the soundings change to mud.

The northern edge of the banks, in 30 fathoms, is 7 or 8 miles to the northward of the east line from Birch Point, and passes the north point of Miscou, at the distance of 4 miles, into the Bay of Chaleur, thus affording excellent guidance to vessels, as has been already remarked. These banks continue to extend off the coast to the southward, but with more regular soundings, and a greater general depth than in the part to which the name of Miscou Banks has been applied.

CHAPTER XIV.

THE COAST OF NEW BRUNSWICK NORTH OF MIRAMICHI.

120. General Description of the Coast, from Miscou to Point Escumenac. Pocmouche, Tracadie, and Tabisintac Rivers.—121. Miramichi Bay. General Description of the Outer Bay. Negowac Sandbar and Gully. Portage, Fox, and Huckleberry Islands. South Beacon. Point Escumenac, its Beacon and Reef. Bar of Miramichi. Lump, and Spit, with their Buoys. Horse-shoe Shoal, Bar of the Horse-shoe or Inner Bar, the Buoys of the Horse-shoe. Tides. Directions for entering the Miramichi—122. Inner Bay of Miramichi. Vin Island and Harbour. Black and Vin Rivers. Napan River. Sheldrake Island. Bartiboque River. Oak Point Beacon and Channel. Remarks and Directions from the Horse-shoe to Sheldrake Island.—123. The River Miramichi from Sheldrake Island to Beaubere Island. Andrew and Leggat Shoals. Middle Island, Chatham, Douglastown. Newcastle and Nelsontown. Beaubere Island. Tides. North-west and South-west Arms.

120. THE course from the east side of Miscou Island to the beacon on Point Escumenac is S. W. by S., and the distance from the north point of Miscou to the beacon is 58 miles. The intermediate coast is low and wooded, with sand-bars and beaches, often inclosing shallow lagoons, through which the rivers discharge themselves into the sea. The entrances of these lagoons and rivers through the sand-bars are usually termed Gullies along this coast. These gullies are generally difficult of entrance, because of the shifting bars of sand off their mouths. They all afford shelter to boats, and some of them to small craft, but there is no harbour for shipping until we arrive at Miramichi. There are no detached shoals along this coast, so that it may be safely approached to 10 fathoms in the night-time, and to 6 or 5 fathoms in the day-time, and with the chart in hand. Nevertheless shoal water extends to a considerable distance from the shore in several places, as for instance off the east side of Miscou, where, at Wilson Point, 2½ miles to the northward of Miscou Gully, a sandy shoal extends a mile out to 3 fathoms, and 1½ miles

Gullies.

Wilson Point and Shoal.

Miscou and Shippigan East Coast.

to 5 fathoms at low water. Off Miscou Gully, 7 miles to the southward of the north point of Miscou, and mentioned in the last chapter as only admitting boats at high water, the shoal water extends 2-thirds of a mile; and 4 or 5 miles farther to the southward, off the low sandstone cliffs of Shippigan Island, there

Rocky Patches.

are rocky patches with little more than 2 fathoms upon them, and nearly a mile offshore. Still farther to the southward, along the coast of Shippigan Island, and 6 miles to the northward of Shippigan Gully, there is another similar patch at the same distance nearly from the shore.

Shippigan Gully.

Shippigan Gully, with its bar of sand, its rapid tide, and dangerously heavy surf occasioned by easterly gales, has been briefly mentioned in the last chapter, and is distant 22 miles from the north point of Miscou. The bar of sand, which dries in part at low water, shifts in heavy gales; but there is generally a channel 4 or 5 feet deep at low water, and the tide rises from 3 to 5 feet, according as it may be neap or spring tide. The 3-fathoms edge of the shoal water, outside the bar, is 2-thirds of a mile offshore, after which the depth increases rapidly. The passage over the bar and into this gully is difficult and dangerous to strangers, but is continually used by the native fishermen with their small schooner-rigged shallops.

Pocmouche.

Pocmouche River, 5½ miles S.W. of Shippigan Gully, after traversing a shallow and extensive lagoon, enters the gulf by a gully through the sand-bars about 100 fathoms wide. A shifting bar of sand outside generally leaves a narrow channel, 4 or 5 feet deep at low water, into the gully, and there is from 9 to 12 feet for some distance within. The spring-tides rise 5 feet, so that large schooners can be taken in by a native pilot, and in fine weather. On the south side of the entrance of the river from the lagoon inland, and 1¼ miles N.W. by W. from the gully, there is a church, village, and saw-mill. The inhabitants, 300 or 400 in number, and principally of Acadian French and of Irish origin, live by fishing, a very limited agriculture, and lumbering.

Green Point and Reef.

Green Point, which separates the lagoons of Pocmouche and Great Tracadie, and is 3½ miles to the S.W. of Pocmouche Gully, has a rocky shoal extending off it 3-quarters of a mile to 3 fathoms, and 1¼ miles to 5 fathoms at low water.

Tracadie.

Tracadie River is somewhat larger, but in other respects similar to Pocmouche. It has a church and village, in like

manner, on the south side of its entrance from the lagoon inland, and which can be seen over the sand-bars; but the church bears S.W. by W. 3¼ miles from the north and principal gully, instead of N.W. by W., as at Pocmouche, which will help to distinguish the one from the other. The North Gully of Tracadie is 7¼ miles S.W. from Pocmouche Gully, and is at present the principal entrance to the very extensive lagoon, through which the river flows in a narrow channel between flats of sand, mud, and weeds, the habitation of innumerable shell-fish. There are several huts and stores at the entrance of this gully, which is 150 fathoms wide at high water; but, like all the rest on this coast, has a shifting bar of sand off it, causing the depth, breadth, and direction of the channel to vary so frequently in heavy gales, as to render all instructions for entering it useless. When our survey was made, in 1839, there were 6 or 7 feet over the bar at low water, consequently 11 or 12 feet at high water, spring-tides; yet we were informed that there is often not more than 8 or 9 feet in the highest tides. In the entrance of the gully, and sheltered by the bar outside, small vessels may lie moored in from 1½ to 3 fathoms water. There are 2 and 3 fathoms in the channel of the river opposite the village, but that can only be reached by passing through the lagoon, where the channel in one part is so shallow that boats can only pass when the tide is in. *North Gully.*

The inhabitants of Tracadie are principally Acadians, who live in the same way as those of Pocmouche: both rivers supply a considerable quantity of pine timber and deals, which are rafted alongshore to be shipped at Miramichi, and recently also at Shippigan.

Two miles to the southward of the north gully is the Old Gully, now nearly blocked up with sand, but which was formerly the principal entrance. South or Little Tracadie Gully is 3¼ miles S.S.W. ¼ W. from the north gully, and had 4½ feet over its bar in the summer of 1839. The South Tracadie River, which discharges its waters, after traversing a lagoon, by this last-named gully into the sea, is separated from the North Tracadie by a point of the mainland which approaches near the sand bars, but still leaves a communication within them from the one lagoon to the other. There are huts and fish-stores at the entrance of this gully, and Acadian settlements at the entrance of *Old Gully.* *South Gully.*

Tracadie. the river. Within the sand-bars which enclose the lagoons of Tracadie, there is a perfectly sheltered boat or canoe navigation for 8 or 9 miles. Point Barreau separates the lagoons of South Tracadie and Tabisintac. There is an entrance into this

Raft Gully. last-named lagoon, called the Raft Gully, 7 miles from South Tracadie Gully, but it is nearly blocked up with sand.

Tabisintac Gully and River. Tabisintac Gully, 6 miles to the southward and westward of Raft Gully, is about 150 fathoms wide at high water, and has a shifting bar of sand, over which 6 or 7 feet could be carried at low water when our survey was made, and consequently 11 or 12 feet at high water in spring tides. The entrance of the Tabisintac River from the lagoon inland is 3 miles to the northward of the gully, and can be seen over the sand-bars. There is plenty of water in this river when once over the bar: 2 and 3 fathoms is the depth in the channel through the lagoon, and there is as much as 4 and 5 fathoms in some parts of the river; but the channel is too narrow and intricate for anything larger than boats or very small vessels. The tide flows 10 miles up this river, through an undulating country, and occasionally between steep banks of sandstone, which rise to about 100 feet above the sea. There are settlements on either shore, consisting principally of Scotch families; and there is a Presbyterian church on the south bank, 1¼ miles up from the lagoon. Salmon are taken in considerable quantities in the Tabisintac. There are lobsters, oysters, and other shell-fish in the lagoon; and cod-fish come in upon the coast early in the season, and are fished for upon a small scale.

Point Blackland. Point Blackland, the north point of Miramichi Bay, bears W.S.W. 1¾ miles from Tabisintac Gully: it is low and swampy, with steep and black peaty banks; and there is a communication round it for boats within the sand-bars, from Tabisintac lagoon into the inner bay of Miramichi.

Miramichi. 121. Miramichi Bay is nearly 14 miles wide from the sand-bars off Point Blackland to Point Escumenac beacon, and 6¼ miles deep from that line across its mouth to the main entrance of the Miramichi, between Portage and Fox Islands. The bay is formed by a semicircular range of low sandy islands, between which there are three small passages and one main or ship chan-

Miramichi Outer Bay. nel, leading into the inner bay or estuary of the Miramichi. If we continue our description of the coast to the S.W., the first of

the islands in Miramichi Bay will be the NEGOWAC SAND-BAR, which, together with several smaller sand-bars lying off Point Blackland, form the shore for 4 miles to the W.S.W. from Tabisintac Gully. The NEGOWAC GULLY, between the sand-bar of the same name and a small one to the S.W., is 280 fathoms wide and 3 fathoms deep; but a sandy bar, of the usual mutable character, lies off it nearly a mile to the S.S.E., and had about 9 feet over it at low water at the time of our survey. Within the gully a very narrow channel, only fit for boats or very small craft, leads westward up the inner bay. The shoal water extends 1¼ miles off this gully, but there is excellent warning by the lead here, and everywhere in this bay, as will be seen by the chart. Shoals, nearly dry at low water, extend from the Negowac Gully to Portage Island, a distance of 1¼ miles to the S.W. PORTAGE ISLAND is 4 miles long in a S.W. by S. direction; narrow, low, and partially wooded with small spruce trees and bushes. The ship channel between this island and Fox Island is 1½ miles wide.

Negowac Gully and Sand-bar.

Portage Island.

FOX ISLAND, 3¾ miles long, in a S.S.E. direction, is narrow and partially wooded: like Portage Island, it is formed of parallel ranges of sand hills, which contain imbedded drift timber, and have evidently been thrown up by the sea in the course of ages. These islands are merely sand-bars on a large scale, and nowhere rise higher than 50 feet above the sea. They are incapable of agricultural cultivation, but yet they abound in plants and shrubs suited to such a locality, and in wild fruits, such as the blueberry, strawberry, and raspberry. Wild fowl of various kinds are also plentiful in their season, and so also are salmon, which are taken in nets and weirs along the beaches outside the island as well as in the gullies.

Fox Island.

The next and last of these islands is HUCKLEBERRY ISLAND, which is nearly 1½ miles long, in a S.E. direction. FOX GULLY, between Huckleberry and Fox Islands, is about 150 fathoms wide at high water, and from 2 to 2½ fathoms deep, but there is a bar outside with 7 feet at low water. HUCKLEBERRY GULLY, between the island of the same name and the mainland, is about 200 fathoms wide, but is not quite so deep as Fox Gully. They are both only fit for boats or very small craft; and the channels leading from them to the westward, up a bay of the main within Huckleberry Island, or across to the French river and village

Huckleberry Island.

Fox Gully.

Gully.

Miramichi Outer Bay.

(where there is a wooden church not easily distinguished from a barn), are narrow and intricate, between flats of sand, mud, and eel-grass, and with only water enough for boats. Six and a quarter miles from the Huckleberry Gully, along the low shore of the mainland, in an E.S.E. ½ E. direction, brings us to the beacon at Point Escumenac, and completes the circuit of the bay.

South Beacon. Rather more than a mile from Huckleberry Gully, towards Point Escumenac, stands the South Beacon, which is large and white, and has a white roofed barn behind it, the two objects having been intended to lead in the best water over the bar; but they are too close together, and do not answer the purpose. There are houses, where some of the pilots reside, for two miles along the shore to the eastward of the south beacon.

Escumenac Point and Beacon. Point Escumenac, the S.E. point of Miramichi Bay, is of peat, upon a very low sandstone cliff, and is wooded with spruce-trees, which form a dark ground for the lofty white beacon,* rendering it so conspicuous that it can be seen at times from a distance of 13 or 14 miles. It is so difficult, especially for a stranger, to distinguish one point of this low coast from another, that this beacon is very useful to vessels bound to Miramichi, and making the land from sea. It also points out the position of the very

Escumenac Reef. dangerous Escumenac Reef, which extends 2 miles out to the N.E. from the beacon to the 3-fathoms mark, and 2¼ miles to 5 fathoms at low water. In the night-time vessels should not stand nearer to this reef than 10 fathoms.

Miramichi Bar. The Bar of Miramichi commences from the S.E. end of Portage Island, and extends across the main entrance, and parallel to Fox Island, nearly 6 miles in a S.E. by S. direction. It consists of sand, and has not more than a foot or two of water over it in some parts, at low spring-tides. Near Portage Island there is water enough over it for small vessels, and there is a still deeper part near its S.E. end, where 13 or 14 feet could be carried over at the time of our survey; but heavy gales doubtless alter the disposition of the sand on this bar, although they are said not to have altered the ship channel within the memory of

Mark for S.E. extreme. any of the pilots. The S.E. extreme of the bar will be cleared by keeping the church at French Village in the centre of Fox Gully, bearing W. ½ S.; and the church in one with the high water

* This beacon has been since replaced by a light-house of wood, painted white, and showing a fixed light 65 feet above the sea, at high water.

south point of Fox Island, bearing W. by S., will lead over the S.E. end of the bar in 2¾ fathoms, but very close to 2 fathoms. The church will not be easily made out by strangers, being a wooden building, only distinguished from the barns near it by a belfry. A Black Buoy is moored in 3 fathoms at low water on the inner or S.W. extreme of the bar, and must therefore be left to the eastward, or on the right, going in. About a mile N.N.W. from this black buoy there is a Red Buoy moored in the same depth of water on the Lump, which is a shoal with 2 fathoms least water on the W. side of the channel. There is no passage for large vessels between the Lump and Fox Island, but there are holes with 4 fathoms water, and a channel of 2½ fathoms at low water, which might be rendered available by buoying if it were requisite, but which is too narrow and intricate without such assistance. In its present state, therefore, and for large vessels, the whole of this part may be considered as one shoal, extending 1½ miles out to the eastward, from the shore of Fox Island to the red buoy of the Lump; and, thus overlapping the S.W. point of the bar, where the black buoy is placed, it renders the channel crooked and difficult. The narrowest and shallowest part of the channel, until we come to the bar of the Horse-shoe, which will be presently mentioned, is in the line from the black buoy to the S.E. end of Fox Island, being less than half a mile wide, with 3½ fathoms at low water in ordinary spring-tides. In heavy easterly gales in the fall of the year, especially during the ebb-tide, there is a dangerous and heavy-breaking sea here, which has in several instances proved fatal to vessels, rendering them unmanageable, so that they have been cast ashore on the islands.

Miramichi Bay.

Black Buoy.

Lump Shoal and Red Buoy.

Within the Red Buoy of the Lump, which must be left to the westward, the channel is clear and straight, about 500 fathoms wide, and from 4 to 7 fathoms deep all the way to another Red Buoy on the same side of the channel, and moored in 4½ fathoms and 70 fathoms from the edge of the shoal. This is the Red Buoy of the Spit, a sandy shoal, with only a few feet of water upon it, extending half a mile from Fox Island. The course and distance from the Red Buoy of the Lump to the Red Buoy of the Spit is N.W. ¼ N. 3 miles. Both the Lump and Spit are steep shoals, but between them a vessel may run along, or even work on the S.W. side of the channel in 4 or 3 fathoms by the lead.

Clear Channel.

Spit and Red Buoy.

Miramichi Bar. On the opposite or N.E. side of the channel the bar is extremely steep, and the leading mark for it, the Easternmost white house of Burnt Church village (on the North side of the bay) just open to the S.W. of Portage Island, bearing N.W. ¾ N., is neither certain, (since another house may be built,) nor readily distinguished by a stranger. The shoal of the Spit trends due west, not quite a mile, from the Red Buoy towards the north point of Fox Island, where the shoal water extends only 100 fathoms offshore.

Fox Beacons. On the North point of Fox Island two small beacons will be seen on the sandhills, the one red and the other white: these kept in one, and bearing S.E. ¾ E., lead in the deepest water, from 2¼ to 2½ fathoms, to the outer Red Buoy of the Horse Shoe.

Horse-shoe Shoal. The Horse-shoe Shoal consists of sand and gravel, with 3 feet least water, and not more than a fathom over many parts of it. It is of great extent, being 3 miles long North and South, and 2¼ miles wide. The N.E. extreme of the Horse-shoe is nearly joined to the shoals of Portage Island, there being only a narrow and intricate channel left which is never used. There is a good anchorage in 4 or 5 fathoms between the Horse-shoe and the South end of Portage Island, where vessels which draw too much water to cross the inner bar may safely anchor during the summer months. To the Southward the Horse-shoe is separated from the shoal, which connects together Fox, Egg, and Vin Islands, by the very narrow ship channel which in one part is only 180 fathoms wide, and 2¼ fathoms deep. This is called the Horse-shoe Bar, or Inner Bar, over which 18 feet of water can be carried in ordinary spring-tides. The south side of the Horse-shoe is marked by three Red Buoys, and one Black Buoy. The outer or easternmost buoy has been already mentioned as lying in one with the two beacons on Fox Island. The other two red buoys bear W. by S. from it, the whole three lying in a line in the space of half a mile. The black buoy lies on the S.W. extreme of the Horse-shoe, and bears S.W. by W. ½ W. two-thirds of a mile from the westernmost red buoy. These buoys must be all left to the northward, the best water being within the distance of half a cable from them. Near the black buoy is the usual place where vessels bound to sea anchor to wait for a wind, or for a high tide to cross the Inner Bar. The S.E. point of the Horse-shoe extends 350 fathoms farther out to the eastward than its outer red buoy; and there is moreover a Patch, or mound

Horse-shoe Bar and Buoys.

Horse-shoe Patch.

of sand and gravel, with only 10 feet water, lying off the S.E. point of the Horse-shoe to the S.E., so as to narrow the navigable channel between it and Fox Island to a third of a mile. The use of the two small beacons on the North point of Fox Island is to enable a vessel to avoid that mound, which renders the passage of the Horse-shoe Bar so difficult for a large vessel: but I believe there is as deep, and a more direct, although a very narrow channel to the northward of the mound, and which would be rendered safe by placing buoys upon it, and upon the S.E. point of the Horse-shoe. *Horse-shoe Bar.*

The stream of the tides is not strong in the open bay outside the bar of Miramichi. The flood draws in towards the entrance as into a funnel, coming both from the N.E. and S.E. alongshore from Tabisintac, as well as from Point Escumenac. It sets fairly through the ship channel at the rate of about 1½ knots at the black buoy, increasing to 2 or 2½ knots in strong spring-tides between Portage and Fox Islands, where it is strongest. The principal part of the stream continues to flow westward, in the direction of the buoys of the Horse-shoe, although some part of it flows to the northward between that shoal and Portage Island. The ebb sets out in the opposite direction, being strongest at the buoys of the Horse-shoe, and in the entrance between Fox and Portage Islands, where in spring-tides it often attains to the rate of 2½ miles per hour, and is said to be still stronger when the waters are high in the spring of the year. The ebb sets out to the eastward from the buoy of the Lump over the tail of the bar, and should be guarded against in light winds. *Tides.*

The winds affected the tides very considerably, and, together with the smallness of the rise, rendered it extremely difficult to make correct deductions from a number of observations so limited as those which we were able to obtain. The easterly winds always make high tides, and sometimes cause the neap to be higher than the spring tides. The time of high water on the full and change days at the S.W. end of Vin Island was observed to be at about 5¼ hours, and the pilots say that it is at about 5 hours on the bar. The rise of an ordinary spring-tide is 5 feet, and of neap-tides 3 feet: but the rise is at all times so uncertain that we have observed neap-tides which did not rise above a foot, and spring-tides not above 2 feet. It must also be remarked that

Miramichi Tides. the A.M. tides rose higher, in general by 2 feet, than the P.M. tides, in the beginning of August, when alone we had an opportunity of observing them.

Miramichi Bar. The Bar of Miramichi should never be attempted by a large vessel, or by persons not thoroughly acquainted with it, without a

Pilots. Branch Pilot, if one can be procured. The Miramichi Pilots are in general well qualified, and will generally be found cruizing in small schooners off Point Escumenac, or will come off to any vessel which may heave in sight; but in case of emergency, and no pilot at hand, proceed as follows: observing first that if you have made the beacon on Point Escumenac late in the day to run in before dark, you must stand off and on till daylight, coming into no less than 12 fathoms of water, especially with an easterly wind.

Directions for the Bar. If Fox Gully can be made out, bring it to bear nothing to the southward of W. $\frac{1}{4}$ S., and look out for the church at French Village, which kept in the centre of the gully will lead you about a third of a mile to the S.E. of the black buoy, on the end of the bar. But the gully and church would both be difficult to make out by strangers; therefore a safer and better plan is to bring the Escumenac beacon to bear south: stand in towards it to 5 fathoms, and then run alongshore to the westward in that depth, which will conduct you to within a short distance of the black buoy. That buoy lies in 3 fathoms at low water, with the south beacon bearing S. by E. $\frac{3}{4}$ E., and the S.E. extreme of Fox Island W.S.W. $\frac{1}{4}$ W. Pass close to the westward of the black buoy, and steer from it so as to pass about half a cable's length to the eastward of the red buoy of the Lump, which you will see bearing N.N.W., and distant less than a mile from the black buoy. Being up to the red buoy of the Lump, steer N.W. $\frac{1}{4}$ N., or so as to pass close to the eastward of the red buoy of the Spit. The distance from the one buoy to the other is 3 miles; and if the weather be so hazy that you cannot at first see the last-named buoy, run along the S.W. side of the channel in 4 fathoms by the lead until you do. Leave the red buoy of the spit close on your left, and steer W. by N. from it, or towards the easternmost red buoy of the Horse-shoe, for a little more than half a mile, or until the west ends of Egg Island and Fox Island come in one, bearing S.W. $\frac{1}{4}$ S. Then change the course to W.S.W., or towards the N.W. point of Vin Island, which steer for, passing the

north point of Fox Island at the distance of 200 of 300 fathoms, until the two small beacons upon it come in one, bearing S.E. ¼ E. Then haul up instantly to the N.W. so as to keep the beacons in one, until you are within the distance of half a cable from the easternmost red buoy of the Horse-shoe, when bear up smartly, taking care not to get to the northward of the line joining the buoys, and leaving them all to the northward of you at the distance of about half a cable. The course past the three red buoys will be W. by S., and the soundings from 2¼ to 3¼ fathoms at low water ordinary spring-tides. From the westernmost red buoy to the black buoy the course will be S.W. by W. ½ W., and the depth between 3 and 4 fathoms muddy bottom. The vessel may be safely anchored near the black buoy, or proceed farther with the assistance of the Admiralty chart, and the directions in the next article. *Miramichi Bar. Directions.*

122. THE INNER BAY OF MIRAMICHI is of great extent, being about 13 miles long from its entrance at Fox Island to Sheldrake Island (where the river may properly be said to commence), and 7 or 8 miles wide. The depth of water across the bay is sufficient for the largest vessels that can cross the inner bar, being 2¼ fathoms at low water in ordinary spring-tides, with muddy bottom. *Inner Bay of Miramichi.*

On the southern side of the bay are EGG and VIN Islands: the first small, low, and swampy, the other much larger, being 2½ miles long, and for the most part thickly wooded. The [illegible]end of the Vin Island is distant nearly 4½ miles, W.S.W. ½ W., from the north point of Fox Island; and round it and the sandy S.W. point is Vin Harbour, perfectly sheltered from all winds, and with plenty of water for the largest ships. A pilot will readily be procured to take a ship into this harbour, or the intelligent seaman may do without one, with the assistance of the Admiralty Chart, as follows:—Steer W.S.W. from the black buoy of the Horse-shoe for about 3 miles, and then to the southward round the west end of Vin Island, at a distance not less than 3-quarters of a mile, until the sandy points on the south side of the island open, bearing E. ¾ N. Steer for them, keeping them just open, and, on approaching the sandy S.W. point of the island, sheer to the southward sufficiently to give it a berth of from 50 to 100 fathoms as you pass round it into the harbour. Do not go to the southward of the line joining the sandy points of the harbour, or you will be on shore on the sandy *Egg Island. Vin Island.* *Vin Harbour.* *Directions.*

Vin Harbour. shoal which extends off the main land opposite. The harbour is a bay of the island, 800 fathoms wide and 300 fathoms deep. Anchor near the centre of it in 10 or 11 fathoms, mud bottom. The long sandy spit and shoal of the main already mentioned runs out to the northward, nearly to the line joining the sandy points of the harbour, but leaves a narrow channel to the eastward, which continues for about 2 miles, and may be considered as a prolongation of the harbour in that direction, or towards the *French River.* point of French river. French river is small and shallow, and has a village of Acadians, and a church, which has been mentioned in the last article as bearing W. ½ S. from Fox Gully, from which it is distant 1½ miles. The space to the eastward of the line joining Egg Island and French River, and in the bay to the southward of the latter, is occupied by flats of sand, mud, and eel-grass—the habitat of oysters, lobsters, and other shell-fish. Shallow and intricate boat-channels lead through these flats to Fox and Huckleberry Gullies.

Vin Bay. Vin Bay is more than three miles wide, and nearly as *Point Quarts.* deep. Point Quarts, its western point, is a low cliff of sandstone with high trees, bearing about W. by N. 3¼ miles from the west end of Vin Island. There is good anchorage in the eastern part of this bay, in 3 fathoms, mud bottom, and about 3-quarters of a mile to the westward of the island. The western side of *Black River.* the bay is shallow. In its S.W. corner is Black River, into which 9 feet can be carried at low water through a narrow and difficult channel, and the river is 3 fathoms deep for some distance *Vin River.* within the entrance. Vin River also runs into this bay, 2½ miles S.W. ½ W. from the S.W. point of the island. It is a smaller river than Black River, having only 6 feet at low water in its entrance. There is a small but neat church on its eastern shore, a short distance within its entrance, and flourishing farms on either side, where supplies may best be obtained. The best watering-place will also be found at this river; but it is difficult to obtain large supplies of good water in so flat a country near the sea. There is a tolerable road from Vin River to Chatham, the principal town on the Miramichi River.

Point Cheval. Nearly 3 miles W.N.W. ½ W. from Point Quarts is Point Cheval, sandy, with a remarkable clump of high trees upon it.

Middle Ground. A long sandy Bank, called the Middle Ground, stretches down the centre of the estuary from Point Cheval, extending from

it 5 miles to the eastward. The east end of the Middle Ground will be cleared by keeping the point of French River open to the eastward of Vin Island, bearing S.E. The ship-channel is between the Middle Ground and the north shore of the bay. *Middle Ground.*

Immediately to the westward of Point Cheval is the shallow Napan Bay and River, which boats can ascend for several miles, or as far as the tide reaches. Above that point the river, which is small, runs through a fertile and well-cultivated valley, extending westward in rear of the town of Chatham. *Napan Bay and River.*

Sheldrake Island lies off Napan Point, at the distance of rather more than 3-quarters of a mile, and bears from Point Cheval N.W. by W. 1¾ miles. It is low, swampy, partly wooded, and has two buildings on its eastern side, which were formerly used as a cholera-hospital,—a strange situation, considering that the place is a swamp, and the musquitoes innumerable. The island is a third of a mile long by a quarter of a mile wide, and is separated from the north shore by a channel half-a-mile wide, but only 1 or 2 feet deep at low water. Shallow water extends far off this island in every direction,—westward to Bartiboque Island, and eastward to Oak Point. It also sweeps round to the south and south-east, so as to leave only a very narrow channel between it and the shoal, which fills Napan Bay, and trending away to the eastward past Point Cheval, forms the Middle Ground already mentioned. Murdoch Spit and Murdoch Point are two sandy points, a third of a mile apart, with a cove between them, and about a mile W.S.W. of Sheldrake Island. The entrance of Miramichi River is 3-quarters of a mile wide between these points and Moody Point, which has a small Indian church upon it, and is the east point of entrance of Bartiboque River, a mile N.W. by W. ½ W. from Sheldrake Island. *Sheldrake Island.* *Murdoch Spit and Point.*

Bartiboque River is 3-quarters of a mile wide at the entrance, between Malcolm and Moody Points, but contracts to 150 fathoms a short distance within, where a wooden bridge has been thrown across since our survey. Bartiboque Island lies in the entrance of the river, and has steep banks or clay cliffs on every side, and is nearly joined to the shore to the northward by a sandy spit. The narrow channel into the river passes close to the east end of the island, and is not more than 4 feet deep at low water. One mile and a half above Murdoch Point, and on the same, or south side of the river, is Point St. Andrew, showing as the extreme *Bartiboque River.* *Bartiboque Island.*

of the land from Sheldrake Island. Both these points were wooded at the time of our survey in 1837, and used as leading marks, as will be presently mentioned.

Oak Point. Returning back to the eastward, along the north shore, the first point requiring notice is Oak Point, nearly opposite Point Cheval, and distant from it 2 miles to the N.N.E. The eastern part of this point has dark-coloured sandstone cliffs, about 12 feet high, and forming an extreme point, it is used as a leading mark with the beacon that stands on the shore of the bay, at the distance of 2-thirds of a mile from it N.E. ¼ E. The beacon is lofty, large, and white, and shows so conspicuously on the dark background of the woods, that it can be easily seen on a fine day from Fox Island.

Oak Point Beacon.

Grandoon Island. Grandoon Island, low and marshy, and difficult to distinguish from the main land till very near, is distant 2½ miles, E.N.E. ½ E. from Oak Point; and 3½ miles N. by E. from Point Quarts. Farther eastward, along the northern shore of the inner bay, are Burnt Church, and the Indian Village, and small river of the same name; also Hay Island, and the Acadian villages of Upper and Lower Negowac, inhabited by fishermen and farmers, and having excellent oysters in their vicinity. The situation of those places will be seen in the Chart; and as they lie out of the line of the ship-navigation, they will require no further notice here than to remark that there is a clear channel, from 3¼ to 2¼ fathoms deep, to the northward of the Horse-shoe and the shoals of Portage Island, as far north-eastward as Hay Island, where a narrow channel leads out to sea through the Negowac Gully (see Art. 121).

Burnt Church. *Hay Island.* *Negowac.*

Oak Channel. The following remarks will describe the Oak channel, and include directions for taking a vessel up to Sheldrake Island. Being about a cable's length to the westward of the black buoy of the Horse-shoe, steer N.W. by W. towards the east point of Grandoon Island; taking care not to shut the point of French River in behind the East end of Vin Island, until you open out the south extreme of the trees on the North side of the entrance of Napan River, just clear to the northward of Point Cheval, bearing W.S.W. If you cannot make out the last-named marks, never mind them, but simply run from the black buoy 4 miles N.W. by W. or towards the East end of Grandoon Island. You will have from 3¼ to 2¾ fathoms, at low water in ordinary spring-tides, as you cross the bay; and will have the least water as you pass

the east end of the middle ground, deepening again to 3 or 3¼ fathoms when you arrive at the channel, which will be when you have run the 4 miles N.W. by W. The east end of Grandoon Island should now be right ahead, at the distance of 1⅓ miles; and you must remember that the shoal water extends a full half mile out from the island, which is sandy and covered with grass, and 4-fifths of a mile long. You will have no occasion to approach the island nearer than 3-quarters of a mile in passing towards Grandoon Buoy, which you will see at the distance of 2½ miles to the westward, after you have run the 4 miles N.W. by W. as directed. The buoy lies in 3 fathoms on the north side of the channel, and at the extremity of the shoal which extends a long mile S.E. from the white beacon. Bring the buoy to bear W.S.W. ½ W. and steer for it; and you will have from 2¼ to 3¼ fathoms at low water, in a channel half a mile wide, until you are up to the buoy, which has 4¼ fathoms close to the southward. Pass to the southward of the buoy at any distance not exceeding 100 fathoms, and you will see the extreme of the trees on Point St. Andrew just open to the northward of the trees on Sheldrake Island, bearing W. ¼ S.; keep them so as you run to the westward in a channel 2-thirds of a mile wide, and from 2½ to 6 fathoms deep, until the white beacon becomes only just open to the eastward of the cliffs of Oak Point, bearing N.E. ¼ E. Take care not to bring the beacon in one with the cliffs, or you will be on shore; but begin to edge away to the S.W., as soon as you perceive the marks coming nearly on. Steer S.W. ¼ W., or so as to keep the beacon just open of the cliffs, and after you have run 1½ miles, those marks will have led you up to the Buoy of the Narrows, between the Sheldrake and Napan shoals. The buoy lies in 3 fathoms on the north side of Sheldrake Channel, which is there only 160 fathoms wide, and 9½ fathoms deep. The ebb-tide runs there at the rate of 3 miles per hour, and perhaps stronger at times when the waters are high, as for instance in the spring of the year. Pass close to the southward of the Buoy of the Narrows, steering W. by S. for about 2 cables' length past the buoy, when you will see the extreme of the trees of Point St. Andrew, come nearly in one with those of Murdoch Point, bearing W. by N. Keep the trees of Point St Andrew just open, running about half a mile towards them, or until the middle of Sheldrake Island bears North: then haul up

Oak Channel.

Grandoon Buoy.

Narrows Buoy.

Sheldrake Channel.

Tides.

Sheldrake Buoy. N.W. by W. ½ W. for Sheldrake Buoy, which you will see at the distance of a mile in that direction. That buoy is placed in

Sheldrake Cha 3 fathoms on the S.W. side of the Sheldrake Shoals; bearing west a third of a mile from the S.W. point of Sheldrake Island,

and and N.N.E. ½ E. a quarter of a mile from Spit Point. Pass to the southward of it, at the distance of half a cable, and after continuing your course for half a mile, you may anchor in 4 fathoms

Anchorage. at low water, over muddy bottom, and nearly midway between Murdoch Point and the East end of Bartiboque Island. There you will be well sheltered by Sheldrake Island and its shoals from the easterly winds; and may water at Moody Point, or at any of the brooks which descend the steep banks to the

Tides. westward of Bartiboque River. The rate of the tides seldom exceed 2 knots at this anchorage.

Miramichi River. 123. The Miramichi River may be said to commence at Sheldrake Island; for below that point the Inner Bay, with its low and widely receding shores, bears no resemblance to a river. It is 3-quarters of a mile wide at Murdoch Point, and half a mile at Point St. Andrews, a breadth which it retains nearly all the way to Chatham. At its entrance, the country begins to rise into gentle undulations, terminating in steep banks and cliffs of sandstone, which in some places attain the height of 50 feet above the river. The settlements too increase in number and extent, and soon become continuous on either side. In the vicinity of the towns of Chatham, Douglastown, and Newcastle there are many pretty buildings; and the country is by no means devoid of beauty, although the dead and half-burnt stems of the large pine-trees, still standing out from among the young growth of light green poplars, give a desolate appearance to the background in the rear of the settlements, and remain a gloomy record of the terrible

Fire of 1825. calamity which they commemorate,—the great fire of 1825. The rocks which appear on the banks of the river are sandstones belonging to the coal formation, the vegetable organic remains of which are frequently met with in veins containing bituminous coal. Thin

Coal. seams, or veins of coal of good quality have been met with, but not as yet in such quantities as to be worth the working. The soil is deep; and although light and friable, seems sufficiently fertile for almost every agricultural purpose. Agriculture is not however, the principal pursuit of the inhabitants, the majority of whom are engaged in occupations more or less connected with the

timber trade. Farming is nevertheless carried on successfully, and to a greater extent every year. The salmon and gaspereaux (or ale-wives) fisheries are also extensively prosecuted in their seasons; and the cod-fishing, on banks in the Gulf at the distance of only a few hours' sail, lie open to the enterprise of the people of Miramichi, whenever it may suit their interests or their humour to leave it no longer almost exclusively to the American fishermen. *Fisheries.*

Written directions will not much avail above Sheldrake Island, not only on account of the contracted nature of the navigation, but also because there are few leading marks of a permanent nature, which could be certainly recognized by a stranger. Directions too are not so requisite for this inland navigation, for which there are abundance of well-qualified pilots. I shall therefore merely point out the direction and nature of the main channel, noticing briefly the dangers to be avoided, and the most remarkable features and objects on either side as we proceed up the river. *Directions above Sheldrake.*

Vessels having arrived at Sheldrake Buoy on the S.W. extremity of the Sheldrake Island shoals, should steer so as to make a W.N.W. ½ W. course, taking care not to go to the Southward into less than 3½ fathoms; or to the Northward so far as to cross the deep water channel of 6 fathoms, or to shut in Oak Point behind Moody Point, until they are half a mile above the entrance of the Bartiboque. They will thus avoid the Andrew Banks, lying in the middle of the river, with 10 or 11 feet least water; and also that which lies 120 fathoms off Malcolm Point. Being more than half a mile above the Bartiboque, they must sheer in towards the North shore, until the Indian church on Moody Point comes on with the cliffs on the south side of Bartiboque Island, bearing E. ½ N.; and then keeping the church just in sight, it will lead up in the deep water, and within a cable's length of the shore in some places, to the buoy at the N.W. extreme of the Leggat Shoals. *Andrew Banks.* *Malcolm Point.*

The Leggat Shoals lie nearer the north than the south side of the river, and at the time of our survey had 12 feet upon them at low water: but the depth is said to vary upon them, and also upon the banks of St. Andrew, in consequence of old trees, logs, and other lumber lodging upon them. The same cause is said to render the depth uncertain to the southward of those shoals (where there is a wider channel), with how much truth I cannot say. The *Leggat Shoals.*

Leggat Shoals and Buoy. channel at the buoy on the N.W. extreme of the Leggat shoals is 5 fathoms deep, and nearly a cable's length wide, between the

Leggat Bank and Buoy. Leggat shoals and a shoal bank which extends off the north shore. On the point of this shoal off the north shore there is another buoy, which will be seen at the distance of a quarter of a mile W.S.W. ½ W. from the former. Vessels must pass close to the northward of the first of these buoys, and close to the southward of the second, which is 2 miles above the Bartiboque River. The river is clear of detached shoals from the buoys last mentioned to Middle Island, which, together with its shoal, confines the ship-channel to the north side of the river, where the shore is so bold that there are 7 or 8 fathoms close to the sandstone cliffs until we come to Gilmour Mills and Cove, nearly opposite the west end of Middle Island.

Middle Island. MIDDLE ISLAND is rather smaller than Sheldrake Island, from which it is distant 5½ miles; and there is no channel to the southward of it at low water. There is nothing in the way of vessels from Gilmour Mill to the wharfs at Chatham.

Chatham. CHATHAM, the principal town on the Miramichi, and containing, at a rough estimate, about 1500 inhabitants, commences half a mile above Middle Island, and extends along the south shore for 1½ miles to the westward. It is conveniently situated for shipping, having deep water (6 to 8 fathoms) close to its wharfs. It is a straggling, but rapidly increasing town, having some good houses, and an English Episcopalian, a Presbyterian, and a Roman Catholic Church, besides two other chapels or places of worship belonging to the Wesleyans and Antiburghers. These buildings are all of wood, neatly painted and finished, and together with the steam saw and grist mill of the Messrs. Cunard form the most remarkable objects.

Douglastown. DOUGLASTOWN, on the opposite or northern shore about 1½ miles above Chatham, is a much smaller place, containing about 400 inhabitants. It is prettily situated on a rising ground, and has sufficient water at its wharfs for the largest vessels. The most remarkable building is the Marine Hospital, built of stone. Mr. Abram's ship-building establishment is 1½ miles above Douglastown, on the same side of the river; and opposite to it on the south shore is the English Episcopalian Church of St. Paul.

Newcastle. NEWCASTLE, 1½ miles farther up the river, and on the north

shore, is the County Town; containing the Court-house and Jail, a Presbyterian Church, a Wesleyan Chapel, and some few other good buildings. The number of inhabitants I should estimate at somewhat less than a thousand. Standing on an acclivity which rises to the height of 100 feet at a quarter of a mile from the river, and commanding a view over the lower ground westward and southward to Beaubere Island, and Nelsontown, and down the river to Chatham, a distance of nearly five miles, its situation is as beautiful as could have been selected, while at the same time it is not unfavourable for mercantile purposes, the channel of the river opposite to it being a third of a mile wide, clear of shoals, and 6 or 7 fathoms deep close to the wharfs of the town. *Newcastle.*

Nelsontown, the last village within the navigable waters of the Miramichi, is a straggling place with 200 or 300 inhabitants, principally of Irish origin, and possessing a large wooden Roman Catholic Church: it stands on the south shore, opposite the east end of Beaubere Island, and a mile above Newcastle. *Nelsontown.*

Beaubere Island is 1¼ miles long, and a quarter of a mile wide. It is a pretty island, having steep clay banks, based on sandstone, and rising to about 20 feet above the river. On its east end there was formerly a ship-building establishment belonging to Messrs. Fraser & Co. *Beaubere Island.*

The Miramichi is easily navigable to this point by any vessels that can cross the bar of the Horse-shoe. There are some parts of the channel above Chatham where there are only 2½ fathoms, and which would have to be avoided by a large vessel at low water; but there is only one detached shoal, which has 9 feet least water, and lies less than halfway across from the south shore, between Mr. Wright's and Mr. Peter's houses, the former being the Collector of Customs. *Wright's Shoal.*

The usual average rate of the ebb-tide is 2 knots, and the flood 1 knot in this part of the river. The ebb in some places runs 2½ knots, and in the spring of the year is said to be still stronger. It is high water on the full and change days at Beaubere Island at 6½ hours; and the rise in ordinary spring-tides is 6 feet, and in neap-tides 4 feet. In July and August, when ou observations were made, excepting for 2 or 3 days at neap-tides, the morning tides rose 2 or 3 feet higher than the evening tides, and are of longer duration by one or even two hours at times. But this is much influenced by winds, and consequently by no *Tides.*

Tides. means regular. The mean length of the flood tide is 5 h. and 56 m., and of the ebb 6 h. and 29 m. The duration and length of the tidal streams are also influenced by the winds, but in general they continue in the channel about half an hour after it is high or low water by the shore.

North West Arm. At Beaubere Island the two great arms of the Miramichi meet. The North West Arm is much the largest, as respects the tidal water, although the South West Arm is considered the main branch, being of a greater length, and discharging more water. The North West Arm would be navigable for large vessels to Shilelah Cove, 7 miles above Beaubere Island, as there is sufficient depth of water, if the channel were buoyed or staked in the narrow parts, which are not more than half a cable wide. Above *Shilelah Cove.* Shilelah Cove it is from 1 to 1½ fathoms deep, in intricate and narrow channels between shoals of mud and low marshy islands, all the way to the rapids, which flow in narrow channels between meadow islands. There the tide ends, and the water becomes perfectly fresh 13 miles from Beaubere Island, and 39 miles from the entrance of the Inner Bay at Fox Island. There is an Indian village on the South West shore, just below the rapids, and the scenery in this fine Arm possesses considerable beauty. The banks of clay and sandstone are almost everywhere bold and dry, with improving farms on either side.

South West Arm. The South West Arm is not navigable for large vessels, as not more than 6 or 7 feet, at low water, spring tides, can be carried through between Beaubere Island and the mainland; and even above that shallow part, although there is often more than 2 fathoms water, yet the channel is too narrow and intricate for any but very small vessels. This Arm is about a quarter of a mile *Barnaby Island.* wide for the first five miles, or up to Barnaby Island; after which it varies from 90 to 200 fathoms until we arrive at the rapids, 12 miles from Beaubere Island. There is an Indian village on the north shore at the rapids, where the river is not more than 50 fathoms wide. Both the shores of this arm are settled, and many of the farms appear to be in a flourishing condition.

Tides. The tide, which ends at the rapids, was observed to rise 2 feet there, and it was high water on the day of the full moon at about VIII hours; as it was also at the foot of the rapids in the North West Arm.

CHAPTER XV.

THE COAST OF NEW BRUNSWICK FROM POINT ESCUMENAC, TO BAY VERTE INCLUSIVE.

124. Sapin Ledge, Kouchibouguac Bay, Kouchibouguac and Kouchibouguacais Rivers.—125. The Richibucto River and Bar. Richibucto Point and Head.—126. The North Patch, and Outer Bar of Buctouche. Buctouche Roadstead, and Buctouche River. Cocagne Harbour and River.—127. Shediac Head and Grandigue Shoal. Shediac Bay with the Medea and Zephyr Rocks. Shediac Harbour. The Bouchagan and Kouchibouguet Rivers. The Great and Little Shemogue Rivers.—128. Cape Tormentine. Cape Jourimain, and the Jourimain Islands. The Jourimain Shoals, and the Tormentine Reefs.—129. The Bay Verte, its Rivers and Shoals.

124. The part of the coast of New Brunswick, within the gulf, which remains to be noticed, extends from Point Escumenac to Bay Verte, and forms the S.W. shore of the strait of Northumberland, for a distance of 80 miles. It will be useful to give a description of the features, rivers, harbours, and dangers of this coast, and of the succeeding coast of Nova Scotia, as well as of the opposite shore of Prince Edward Island, before we treat of the strait itself, or give directions for its navigation.

Point Escumenac, with its beacon* and reef, has been already noticed (art. 121); and 5¼ miles to the S.S.W., along a very low and shallow shore, brings us to Point Sapin.

The Sapin Ledge, discovered by us in 1839, of sandstone, and with 12 feet least water, is very dangerous, lying directly in the way of vessels running alongshore. It should not be approached nearer than 9 fathoms in the night-time; and at all times it should be remembered, that the 5-fathoms line is distant from it *Sapin Ledge.*

* This beacon has been since replaced by a Light-house showing a fixed light.

Sapin Ledge. only about 2 cables. This ledge is 1¼ miles long, east and west, by about half a mile wide, reckoning from 3 fathoms to 3 fathoms; and its eastern or outer extremity bears south 6 miles from Escumenac Beacon,* and E.S.E. ½ E. 2½ miles from Point Sapin. There is a depth of 3½ fathoms between it and the last-named point.

Kouchibouguac Bay. From Point Sapin to Richibucto Head, the course is S. ¾ W., and distance nearly 20 miles, across KOUCHIBOUGUAC BAY, the shores of which are exceedingly low, with sand-bars and beaches, inclosing extensive and shallow lagoons, through which the rivers flow to the sea.

The shoal water, by which I mean depths not exceeding 3 fathoms, extends offshore to a very considerable distance in the north-western part of Kouchibouguac Bay; and there is foul ground, with as little as 3 fathoms of water, more than 2 miles out to the east, from the mouth of the river of the same name. N.E. gales send a heavy swell into the bay, so that it is recommended not to get embayed there, especially at night, or in a dull sailing vessel.

Kouchibouguac River. THE KOUCHIBOUGUAC RIVER, after flowing for more than a mile through an extensive lagoon, nearly dry at low water in spring-tides, enters the sea by an outlet through sand-bars about

Bar. 9 miles S.W. from Point Sapin. Its bar of sand not unfrequently shifts in heavy easterly gales; and the channel is at all times narrow and intricate. A depth of 9 feet at high water and spring-tides could be carried in over the bar at the time of our survey in July, 1839. The tides rise from 2½ to 4 feet, flowing

Range of Tides. about 8 miles up the river, and affording a depth of from 2 to 3 fathoms through a very narrow and crooked channel, for a distance of 5 miles in from the bar. Large ships, which are occasionally built there, are taken out light, and towed by a steamer to be fitted at Richibucto or Miramichi. The banks of this river are well settled, and there is a saw-mill at the head of the tide.

Kouchibouguacsis River. THE KOUCHIBOUGUACSIS RIVER is nearly similar in all its characters to the Kouchibouguac, having, like the latter, a course of 40 or 50 miles, but becoming rapid, shallow, and consequently unnavigable, above the point reached by the tide. It has saw and grist mills, and settlements of Acadian French on its banks.

* Since our survey the beacon has been replaced by a Light-house.

Of its two outlets through the sand-bars, the most northern, 3 miles southward of the Kouchibouguac, is now only fit for boats, the channel leading to it through the lagoon having become nearly filled up with sand and weeds. The river, after entering the lagoon, and running for some distance towards this outlet, turns to the southward, and continues its course within the sand-bar for a distance of 3 miles to the southern and main outlet, which is called Big Cove, and is 6 miles south of the Kouchibouguac, and 3 miles north of the Richibucto River. The depth by a narrow channel, over the shifting bar of sand, is 9 or 10 feet at high water in spring tides. There are 3 fathoms just within the sand-bars, from 1 to 3 fathoms through the lagoon, and 2 or 3 fathoms for several miles up the river. There is a communication by boats at high water through the lagoons, and within the sand-bars, not only between the two rivers just described, but also southward to Richibucto, and northward nearly to Marsh River, a distance in all of nearly 15 miles.

Northern Outlet.

Main Outlet or Big Cove.

Bar.

125. The Richibucto River is of very superior importance to those which have just been described: being, among the rivers on this side of New Brunswick, inferior only to the Miramichi, either in the distance to which it is navigable, or in the depth of water over its bar. It is annually visited by a considerable number of vessels for cargoes of lumber. There are flourishing and rapidly increasing settlements on its banks, as well as on those of its principal tributaries, the Aldouin, the St. Nicholas, and the Molus or Molies Rivers, of which, as being of no nautical importance, it is unnecessary here to speak particularly. The population, of English, Scotch, Irish, and Acadian extraction, are engaged in agriculture, lumbering, and ship-building; but they do not prosecute the fisheries. Traces of coal are reported to have been found in the sandstone, which forms the substratum of this and of all the neighbouring country.

Richibucto River.

The Aldouin enters on the northern side: about 2 miles within the entrance of the river, and about a mile higher up on the same side, stands the town of Liverpool, containing, according to our estimation in 1839, about 600 inhabitants. It has an Episcopal church, a Wesleyan meeting-house, court-house and jail, &c.; being the capital town of the county of Kent. There is a Presbyterian church 1¼ miles above the town, and opposite to it, on the southern side of the river, the ship-building establishment of the Messrs.

Aldouin River.

Liverpool.

Liverpool. Jardine, together with a village of Micmac Indians, who are employed by those gentlemen as labourers and choppers, an almost singular instance of even partial success in inducing the aborigines to submit to regular labour.

Richibucto entrance. The entrance of the Richibucto is nearly 360 fathoms wide; it lies between two sand-bars several miles in length, called the north and south beaches, on which there are sand-hills as high as 30 feet. Immediately within the entrance there is a wide expanse of mud and weeds, nearly dry at low water, excepting the channel of the river. On the northern side, a shallow bay leads, within the north beach, to the lagoons already mentioned (Art. 124): *French Island.* whilst on the south side, within the south beach, lies French Island; *Low Village.* and still further to the S.E. French Creek, and Low Village, where there is a Roman Catholic church, visible in some directions from the sea. Within the wide part just mentioned, the breadth of the Richibucto is rendered irregular by numerous bays on either side. Just below the town it is above 400 fathoms wide, but contracts to 150 fathoms at Jardine's establishment, after which it expands again for a considerable distance, and is no where less than 80 or 90 fathoms broad, nearly to the end of the navigation; although the channel between mud-banks, nearly dry when the tide is out, is much narrower. Low cliffs of sandy clay are frequent on either side of the river; but the adjacent country, although undulating, is everywhere of very small elevation, not exceeding 80, or at the utmost 100 feet above the sea.

The Richibucto is navigable for boats nearly to the head of the tide, being a distance of about 22 miles, following the stream; the general direction being W.S.W. Any vessel that can pass the bar may be taken about 13 miles up the river; the depth in the channel varying in that distance from 3 to 9 fathoms, over mud bottom. Smaller vessels may ascend to within 2 or 3 miles of the head of the tide, where the river is quite shallow and rapid at low water.

Richibucto Bar very dangerous. The Bar of the Richibucto is extremely dangerous, especially to large deeply laden, and dull sailing vessels outward bound in the fall of the year. Taking advantage of the highest spring tide, and sailing at high water, if the wind becomes unsteady or too light, they are almost certain to be thrown ashore by the ebb tide, on the south-eastern part of the bar; and should a N.E. gale occur, to be destroyed before they can be got off again. To take a ship

in with a leading wind and flowing tide, is attended with no other difficulty than that which arises from the narrowness of the channel; but in all cases the assistance of a pilot is absolutely necessary, since the bar is subject to occasional changes from the effect of heavy gales. We found the branch pilots of Richibucto able, intelligent, and attentive to their duties; they keep a good look out for vessels from the beacon at the mouth of the River. The bar extends from the north beach, for 2 miles to the E.S.E., parallel to the south beach; there is a rock in the eastern part of it, but the remainder is of sand, dry at low water. No part of this bar extends to seaward so much as a mile from the shore, and it may be safely approached by the lead to 6 fathoms, at any time of the tide; but for the purpose of anchorage 9 fathoms is a better depth, the bottom being there of fine brown and gray sand, affording far better holding ground than further in-shore. The situation of the narrow channel over this bar (1½ miles E.S.E. from the river's mouth) is indicated by two white beacons on the south beach, and by a large black buoy moored off it in 3¼ or 4 fathoms at low water, with the two beacons in one, bearing (in 1839) W.S.W. ½W. distant not quite a mile. These beacons in one always lead in over the bar, being shifted as required almost every spring, in consequence of changes in the channel effected by heavy N.E. gales. The north beacon, which stands on a sand-hill, 30 feet high, at the south extremity of the north beach, is large and white, being intended to point out the situation of the river to vessels many miles out to sea.

Pilot.

Anchorage without the Bar.

Bar Beacons.

Bar Buoys.

Although, as I have before remarked, the assistance of a pilot acquainted with the set of the tides, and familiar with the appearance of every object, is absolutely requisite to ensure safety, yet, in the event of emergency, the following brief directions in illustration of the Admiralty chart might enable the intelligent seaman to run his vessel in with safety.

To take the Bar in the absence of a Pilot.

Having made the north beacon, look out for the black buoy, and keep outside of it, in not less than 5 fathoms, until it and the two beacons come in one, bearing about W.S.W. ½W. Then steer in close past the buoy, keeping the two beacons exactly in one, and looking out for the small white buoys, which are placed along the southern edge of the bar, and must be left on your right hand going in. Having run in about half a mile with the two beacons in one, you will have arrived within 200 fathoms of the south

Richibucto Bar.

beach, and will observe the small white buoys along the south, or inner side of the bar come in one with each other, and with the north beacon bearing W.N.W. Haul up immediately for the latter, leaving the buoys at about the distance of 20 fathoms on your right hand; and when you have run to the W.N.W., between the bar and the south beach, about 1¼ miles, and have arrived within the distance of 200 or 300 fathoms from the north beacon, the channel becomes again very narrow, and is marked by small buoys on either side; but as these buoys might not readily be made out by a stranger, bring the S.W. point of the north beach to bear N.W., and steer for it; observing that the channel, which is then only fifty fathoms wide, passes close to the north beach at the north beacon. As soon as you arrive opposite the beacon, edge away west and W.S.W. for half a mile, when you will have plenty of room to anchor in a perfectly secure harbour. The small white buoys which I have mentioned, are merely pieces of wood, painted white, and placed at convenient distances, according to the judgment of the pilots.

The depth of water over the bar is 13½ feet at low water, or 17½ feet at high water, in ordinary spring tides; and there is not a continuously greater depth for the first mile in from the black buoy, the channel being from 50 to 90 fathoms wide, from 2 fathoms to 2 fathoms, excepting at the turn to the W.N.W., which is the narrowest part, and only 40 fathoms broad. Further in, the channel expands in breadth to about 180 or 190 fathoms, increasing in depth to 3½ fathoms; it contracts again to only 50 fathoms wide at the north beach, where the depth is 5 fathoms, and the stream of tide strongest, being about 2½ knots. About half a mile within the north beacon the channel widens for a short distance to 200 fathoms, and is from 3 to 4 fathoms deep, with mud bottom. The depth increases further in, and is nearly 9 fathoms in some places; but for further particulars I must refer to the plan, which these directions and remarks are intended to accompany.

Tides.

The ordinary spring tides rise 4 feet, and the neap tides 2½ feet, at the north beacon. On the day of the full moon in July there was only one high water, at 3h. 30m. A.M., and one low water, at 4 P.M. But towards the time of neap tides, two high waters in 24 hours become apparent for a few days. There would seem to be two interfering tides, presenting phenomena which it would require

accurate and long continued observations to explain. The rate of the tides in the river is from 1½ to 2 knots.

Off Richibucto Point, which is the S.E. extreme of the south beach, and 3½ miles from the river's mouth, a reef of sandstone extends off shore to the distance of a mile from the high water mark, and continues 2 or 3 miles further to the southward, to Richibucto Head, which is of sandstone and clay cliffs, 50 feet high. *Sandstone Reef.*

126. From Richibucto Point to the S.E. extremity of the Buctouche sand-bar, the course is south, and distance 14½ miles. There is nothing requiring notice in the bay between them, excepting the small river Shockpish, affording shelter to boats at high water. *Shockpish River.*

The North Patch of rocks, with 12 feet least water, was discovered by us in 1840. It is small, with 5 fathoms close outside of it; lying on the N.E. point of the outer bar of Buctouche, with the following marks and bearings, viz.: Cocagne steeple and the N.W. extreme of Cocagne Island in one, bearing S.S.W. ½ W. The south end of Buctouche sand-bar S. W. by W., Buctouche steeple seen over the sand-bar N.W. by W. ½ W., and the distance off shore 2 miles. Vessels will pass outside of it, if they do not come into less than 5 fathoms at low water. *North Patch.*

The Outer Bar of Buctouche is a long ridge of sandy and rocky ground with from 2½ to 3¾ fathoms, extending to the southward, and parallel to the shore from the North Patch nearly to Cocagne, a distance of 7 miles. There is a narrow channel between it and the shore, of various depths, from 3½ to 5 fathoms. *Buctouche Outer Bar.*

Buctouche Roadstead, off the entrance of Buctouche River, and in the widest part of the channel within the outer bar, is perfectly safe for a vessel with good anchors and cables; the ground being a stiff tenacious clay, and the outer bar preventing any very heavy sea from coming into the anchorage. It is here that vessels, of too great draft of water to enter the river, lie moored to take in cargoes of lumber. In approaching this anchorage there is nothing in the way of vessels that do not draw too much water to pass the outer bar, excepting the North Patch already described; but larger vessels will find more water (not less than 3½ fathoms) by approaching from the northward, according to the following directions. Being off the coast with a leading wind, bring Buctouche steeple to bear to the southward of west, and run in *Buctouche Roadstead.* *Approach.*

Buctouche River.

shore with it on that bearing, in order to pass to the northward of the North Patch. As you run in, you will, if the weather be favourable, observe Cocagne steeple open out to the westward of Cocagne Island, so as to be seen between the latter and the main land; and you must continue your course till the steeple comes on with the extreme of Dickson Point, which is a small, low, and rocky peninsula of the main land, 2½ miles to the southward of Buctouche sand-bar. Change the course immediately, running with Cocagne steeple and Dickson Point in one, bearing S.S.W.¼W., and they will lead you close inside of the outer bar, and clear of a small shoal, which lies between it and the shore, on which there are not less than 2¾ fathoms, as you will see in the chart. Take care not to shut the Cocagne steeple in behind Dickson Point, as you run along the sand-bar, and immediately after Buctouche steeple opens out to the westward of the small sandy islet which forms the S.W. point of Buctouche sand-bar, you will observe two white beacons on the main land come in one, bearing N.W. by W. ¾ W.; anchor with them in one, and Cocagne steeple open about its own breadth to the left or eastward of Dickson Point, and you will be in the best berth in 3¾ or 4 fathoms at low water, and with excellent holding ground. It may happen that the state of the weather may prevent the leading mark from being distinguished, but even in that case the Admiralty chart and the lead should be sufficient guides.

Buctouche River.

Buctouche River enters the sea to the S.E., through the shallow bay within the Buctouche sand-bar, as will be seen in the chart. The two white beacons which I have mentioned, as pointing out the best anchorage in the roadstead, are intended to lead in over the bar of sand and flat sandstone, in the best water, namely, 8 feet at low water, and 12 feet at high water in ordinary spring tides. But the channel is so narrow, intricate, and encumbered with oyster beds, that written directions are as useless as the assistance of a pilot is absolutely necessary to take a vessel safely into the river. Within the bar is a wide part of the channel in which vessels may ride safely in 2½ and 3 fathoms over mud bottom; but off Giddis Point the channel becomes as difficult, narrow, and shallow as at the bar. It is in its course through the bay that the Buctouche is so shallow and intricate; higher up its channel being free from obstruction, and in some places 5 fathoms deep. Having crossed the bar, a vessel may ascend about 10

Pilot necessary.

miles further, and boats 13 or 14 miles, to where the tide-water ends. One mile above the Roman Catholic church there is a bridge, but it is so constructed as to permit the vessels to pass, which are built higher up the river. There is also a bridge over the southern and smaller branch. The country on either side of the Buctouche is considerably higher than at Richibucto, the ridges attaining an elevation of about 200 feet above the sea. The banks of the river are well settled, principally by Acadians, and the clayey soil is very fertile. There are saw and grist mills at the head of the tide. A few vessels are built in the Buctouche annually, and several sail from Great Britain visit it for lumber; but it is at present a place of no great trade. *Buctouche River.*

Cocagne Harbour, 6 miles south of Buctouche, has its entrance to the southward of Cocagne Island, and between it and Point Renouard, the latter being formed of reddish sandstone cliffs 50 feet high. It is a very small harbour, and the channel over the bar, of sand, gravel, and sandstone, is extremely narrow and crooked with 10 feet at low water, or 14 feet at high water in ordinary spring tides. Within the bar there are from 2½ to 4 fathoms, in a very narrow channel, for a distance of about three-quarters of a mile; and it is here that a vessel or two lie moored every year to take in lumber. Further in, the bay is shallow, with oyster beds and mud flats, covered with from 4 to 6 feet water. To enter this harbour, fine weather and a good pilot are absolutely necessary. *Cocagne Harbour.*

Cocagne River enters the head of the bay half a mile to the southward of the Roman Catholic church, and 3 miles W.S.W. from the harbour's mouth. It is crossed by a bridge just within its entrance, and is navigable by boats for several miles. The shores of the Cocagne River and Bay are well settled, by families of Acadian and British extraction, engaged in agriculture, together with lumbering and ship-building to a limited extent. *Cocagne River.*

127. Shediac Point is a low sandstone cliff, nearly 4 miles to the southward of Cocagne; and nearly 10 miles S. ¼ E. from the S.E. point of Buctouche sand-bar. Grandigue Shoal, with from 14 to 18 feet water, extends off it to the distance of 2 miles, having the least water near its outer edge. This extensive rocky bank is dangerous to large vessels, which, however, can pass outside of it, if they do not approach the shore nearer than 5 fathoms at low water. *Shediac Point.* *Grandigue Shoal.*

Shediac Bay is 6½ miles wide from Shediac Head to Point *Shediac Bay.*

Shediac Bay. Bouleaux (Birch Point), and about 5 miles deep. On its north side will be seen the Roman Catholic church, and village of *Grandigue.* Upper Grandigue; and along the head of the bay, within the *Shediac.* island, the village of Shediac, with its small English Episcopal church. There is less than 3 fathoms depth of water in the greater part of this bay, as will be seen by the chart; it is therefore unsuited to very large vessels, and it is rendered dangerous to strangers by the shoals which I am now about to describe. *Anchorage.* There is good anchorage under its north point, in N. and N.W. winds, in 17 or 18 feet mud bottom.

Medea Rock. THE MEDEA ROCK is very small, with 7 feet least water: there is 3 and 4 fathoms depth of water all round it, at the distance of a cable's length, excepting to the southward, in which direction there are several rocky patches, with 12 feet water, between it and the shore, which is distant from it nearly 1¾ miles. This dangerous rock lies 200 fathoms within the line joining Shediac and Cocagne Heads, with Hannington's house just open to the southward of the low sandy S.W. point of Shediac Island, bearing W. ¼ S., and Point Chêne (Oak Point), the south point of entrance of the harbour, W.S.W. ½ W., 2½ miles.

Zephyr Rock. THE ZEPHYR ROCK is also very small, with 9 feet least water, and lies rather more than a mile W.N.W. from the Medea Rock. When on it the English church will be seen over, and shut in two or three times its own breadth behind the sandy S.W. point of Shediac Island, bearing W.S.W. ¾ W., the N.E. point of Shediac island N.W. ½ N., and Point Chêne S.W. ½ W. It is distant from the S.E. point of the island, which is the nearest part of the shore, a long mile. There are from 14 to 22 feet of water between the Medea and Zephyr Rocks, but the best channel is to the N.W. of them both, as will be presently mentioned.

Shediac Harbour. SHEDIAC HARBOUR is the easiest of access and egress on this part of the coast, being the only one which a vessel in distress can safely run for, as a harbour of refuge. It is very superior to Buctouche and Cocagne, in the depth of water over the bar, and it is also much more extensive within than the latter; the space in which shipping may be moored, in from 12 to 17 feet at low water, being three-quarters of a mile long, and from 170 to 300 fathoms wide. The depth that can be carried in by a good pilot is 14 feet at low water, and 18 feet at high water in ordinary spring tides; and the bottom in the channel is of mud, as it is also in the harbour

within. Although a slight swell may be felt in this harbour at high water, in a N.E. gale, yet it is never sufficient to endanger, in the slightest degree, a vessel with good anchors and cables. Even in the bay just outside of the bar, a vessel would ride safely in any gale not unusually strong for the summer months. The harbour lies between the S.W. point of Shediac Island and Point Chêne; the latter bearing from the former S.S.E. three-quarters of a mile. From Point Chêne a sandy bar runs out to the northward, 800 fathoms, and is dry for nearly half that distance at three-quarters ebb. It is this bar, together with the shoal further out, off the S.E. point of Shediac Island, which renders the harbour so secure.

Shediac Harbour.

Anchorage outside the Bar.

Point Chêne.

The entrance between the north point of the bar and the edge of the shoal water off the island, is the narrowest part of the channel, and only 120 fathoms wide, from 12 feet to 12 feet on either side; moreover, there are two or three very small patches, perhaps ballast heaps, of 11 or 12 feet water, which were only to be avoided by the Messrs. Milne, the intelligent harbour-master and his brother, who are the only but very able pilots for the place. They generally place stakes and buoys for their own guidance, and according to their own judgment, every year; and their assistance should always be sought. But in case of necessity, when no pilot can be procured, the following directions, together with the Admiralty chart, will be sufficient guidance to a vessel requiring no more than the depth of 11 feet at low water, which is all that can be insured without a pilot, or one acquainted with the buoying or staking of the channel.

Directions for Shediac.

Being in the entrance of Shediac Bay with a leading wind, bring the English church open its own breadth, clear of the south extreme of the trees of Shediac island, bearing W.S.W. ½ W.; and keep it so as you run towards it, until Grandigue church and the N.E. point of Shediac Island come in one, bearing N.W. by N.; then change the course instantly for Point Chêne, which will bear about S.W. ½ S. Run half a mile on that course, and you will bring the English church in one with the end of the grass, on the sandy S.W. point of Shediac Island, bearing W.S.W. ¾ W., and must immediately steer for it. Keep the south side of the church, and the south extreme of the grass in one, taking care not to open out the church in the least, and when you have run nearly half a mile on that course, you will see the S.E. and N.E. points of Shediac Island come in one, bearing N. ½ E., and will then be on the north

Shediac Harbour.

extreme point of the bar, in 12 or 13 feet at low water. Continue your course for 100 fathoms after the last named cross marks come on, and you will perhaps be able to make out the low sandy Grandigue Point, which will then come in one with the S.E. point of Shediac Island, bearing N. by E.; but if not, you must endeavour to judge when you have run that short distance, and must then quickly change course to S.S.W., or so as to have Point Chêne a very little on your larboard bow. Having run 230 fathoms S.S.W., Indian Island will open out to the westward of the S.W. extreme of trees of Shediac Island, and will be seen over the low spit which has been so often mentioned as forming the sandy S.W. point of the island. Run on about 100 fathoms further, and the sandy west point of Shediac Island, will open out clear of the S.W. extreme of trees, bearing N.W. by N., and will be seen over the spit in like manner; when you may anchor in 14 feet at low water; or, if you wish for more room, run 150 fathoms S.W. by W., and anchor there in the same depth of water. The foregoing directions will carry a vessel to the northward of the Zephyr Rock, and between it and the shoal off the island, which I consider the safest route for a stranger. The harbour is much more extensive for vessels of light draft of water than I have mentioned, although encumbered by ballast heaps; and vessels drawing 7 or 8 feet may be taken through the bay within the island to the wharf at the village.

Shediac Settlement.

Shediac, although well situated, is not yet a place of much trade, only a few cargoes of lumber, principally deals, being shipped at it annually for the British market. The Shediac and Scoudouc Rivers, in the N. W. and S. W. corners of the bay respectively, are small streams navigable for boats for a few miles, to saw mills at the head of the tide. There are bridges across each of these streams near their mouths, where there are oyster beds, as there are also, together with other shell fish, in many parts of the bay.

The country about Shediac is fertile and well settled, consisting of undulating ridges of clayey loam, attaining the extreme height of 150 feet, and resting on the sandstone of the coal formation. There is a good road across from Shediac to the village of Monckton, at the bend of the Petticodiac River, the distance being 14 miles: and this is one of the places where it has been proposed to connect the waters of the bay of Fundy and the Gulf of St. Lawrence by a canal, the practicability of which will perhaps be found to depend on the possibility or otherwise of

finding the requisite supply of water from a sufficiently elevated source.

Tides. The tides at Shediac, when unaffected by winds, rise 4 feet in ordinary spring tides, and 2 feet in neap tides; and the rate of the stream of either ebb or flood seldom exceeds half a knot. In the month of August there occurred two high waters, on the full and change days, at one o'clock and at eight o'clock in the morning; but there was only one low water, at half-past four o'clock in the afternoon; for although the tide did in general fall a little between the two high waters, yet it was usually only a few inches, and seldom more than a foot.

Bouchagan and Kouchibouguet Rivers. Bouchagan and Kouchibouguet Rivers, in the sandy bay between Point Bouleaux and Cape Bald, and 6½ miles eastward of Shediac, are small, and can only be entered by boats at high water.

Bouleaux Reefs. Off Point Bouleaux a reef extends more than a mile from the shore; but Cape Bald, which is of sandstone cliff, 40 feet high, and 11 miles eastward of Shediac Island, is bold, and may safely be approached by the lead to 5 fathoms.

Shemogue Rivers. Great and Little Shemogue Rivers are 7 miles and 9½ miles respectively to the S.E. by E. of Cape Bald. They are only fit for boats and very small vessels, having very narrow and intricate channels, over shifting bars of sand. At the time of our survey, 10 feet could be carried in over the bar of the former, and 8 feet over that of the latter, in spring tides. There is good anchorage, in 5 or 6 fathoms sandy bottom, off these rivers, which are in the bay between Cape Bald and Cape Bruin, the latter bearing from the former S.E. by E. nearly 13 miles. In the distance just named the coast is free from danger, the shoal water extending only about half a mile off shore; and a vessel may safely approach at night to the depth of 6 fathoms at low water. But further to the eastward greater caution will be requisite, on account of the dangerous shoals which commence off Peacock Cove, which is in the bay between Cape Bruin and Cape Jourimain.

Shemogue Road.

Dangerous Shoals.

Cape Tormentine. 128. Cape Tormentine is a name sometimes applied to the whole, and sometimes to different points, of the great head-land which forms the eastern extremity of New Brunswick, within the gulf, and which separates Bay Verte from the rest of the Strait of Northumberland. But I restrict it to the comparatively

Cape Tormentine.

high central point, to which the inhabitants also seem to confine it; and again, in conformity with their usage, as well as for precision of description, I have adopted the names of Indian Point and Cape Jourimain for the southern and northern extremities of this promontory, which is a place of great importance in a nautical point of view, not only from its position, but from its dangerous and extensive shoals.

Jourimain Islands.

CAPE JOURIMAIN, the north extreme of the Jourimain Islands, forms the extreme point of land to vessels running through the Strait of Northumberland, either from the eastward or westward. It bears S.E. by E.$\frac{1}{2}$ E. 6$\frac{1}{2}$ miles from Cape Bruin; and there is good anchorage in the bay between them, in 5 fathoms sandy bottom, and in winds from the S.E. by E. round by south to W. by N. The islands are connected together, and with the mainland, by sand-bars and marshes; but still they appear as islands when seen from a distance sufficient to sink the sand-bars below the horizon.

Jourimain Shoals.

THE JOURIMAIN SHOALS are extremely dangerous to vessels running at night without their leads going; they commence at Peacock Cove, off which there is a patch of 3$\frac{1}{2}$ fathoms, 2 miles off shore, as will be seen in the chart. They extend from Cape Jourimain 1$\frac{1}{2}$ miles to the N.N.W.; and there is a patch of 4 fathoms, 1$\frac{1}{4}$ miles north from the same point. From their N.W. extreme they extend 4$\frac{1}{2}$ miles to the S.E. They are of sandstone, thinly and partially covered with sand: and their S.E. point, a narrow ridge with only 6 feet at low water, and distant 1$\frac{1}{4}$ miles from the shore, is the most dangerous, because the boldest part of the shoals. It should not be approached nearer than 9 fathoms in the night-time; but further westward the shoals may be approached with proper caution to 6 fathoms at low water. To the southward of these shoals, and between them and the Tormentine reefs, there is very good anchorage with westerly winds, in from 5 to 6 fathoms, the bottom being of sand, with clay underneath.

Tormentine Reefs.

THE TORMENTINE REEFS are extremely dangerous, and are rendered doubly so by the strong tides. They extend off Indian Point rather more than 3 miles to the E. S E., and there is rocky ground with 4 fathoms fully a mile further off shore. The part of these reefs which dries at low water is very small, and bears E.S.E. $\frac{1}{4}$ E., 2$\frac{3}{4}$ miles from Indian Point. It lies about 150 fathoms

to the southward of the line joining Cape Spear and the south side of Ephraim Island, and the whole of that island open to the southward of Cape St. Laurent will clear it more than a mile to the southward; but these marks are not of much use, nor are there any others that can be depended upon, for the north extreme of the trees of the inner Jourimain Island, and the south extreme of the trees of the outer Jourimain island touching, which is the mark that now leads well clear of the reef to the northward, will change as the woods are cleared away. The only sufficient guides, therefore, are the lead and the Admiralty chart Vessels running through the strait at night, or at any time without a commanding breeze, should not approach this reef from any direction between north and east nearer than 9 fathoms; for the flood tide sets over it to the southward, into the Bay Verte, at the rate of 3 knots, causing a great rippling over the part that dries, and generally indicating its position. Nearly midway between the dry part of the reef and Indian Point there is a patch of rocks with 7 feet at low water. Small craft carry a depth of 2½ fathoms at low water through between that patch and Indian Point, and often take shelter under the latter in northerly winds: but large vessels, wishing to do the same, must run round outside the whole of the reef, and will find the soundings in the Admiralty chart a sufficient guide for the purpose. *Tormentine Reefs.*

129. Bay Verte is 9 miles wide across its entrance, from Indian Point in New Brunswick, to Coldspring Head in Nova Scotia, but contracts to the breadth of 2½ miles near its head. It is 11 miles deep, and separates the two provinces which have just been named: their boundary continuing across the isthmus from the head of Bay Verte to Cumberland Basin, a distance of about 11 miles. This isthmus, connecting Nova Scotia with the rest of North America, is said to be low, and to afford an advantageous level for the construction of a canal, which may unite the waters, and facilitate the traffic between the Bay of Fundy and the Gulf of St. Lawrence: but if ever such a work be undertaken, it will be necessary to form a harbour in addition, for there is none in the Bay Verte, which is completely open to easterly winds, as well as very shallow near its head, where flats of mud and weeds dry out to a distance of three-quarters of a mile from the shore. *Bay Verte.*

In the northern corner of the head of the bay is Gaspereaux

Gaspereaux River. River, a small stream, only fit for boats; and half a mile to the southward of its mouth, on Old Fort Point, the remains of Fort Monckton are still to be seen, though now washed by the sea.

Monckton Fort.

Tignish River. The River Tignish is the most considerable stream in the Bay Verte, which it enters on the south side near its head. It has only 3 feet depth of water, in a very narrow channel, when the tide is out; and it is approached by a narrow channel, from 3 to 7 feet deep, through flats of mud and weeds, which dry out a mile from its mouth. The river is crossed by a bridge 2¼ miles up from its entrance, following the windings of the river; and about 3 miles further up, the tide is limited in its ascent by Toby's Mill; though, before the mill was built, it flowed 1½ miles further.

Tides. Traffic. The spring tides rise 9 feet, and the neap tides 5 feet. About 100,000 deals are said to be annually rafted down this river, from whence they are for the most part taken in small schooners, or in rafts along shore, to Pugwash, to be shipped for the British market.

There are thriving settlements on either side of the Bay Verte, and especially at its head, where extensive tracts of meadow land have been formed by dyking out the tide.

Shoals in Bay Verte Bay Verte has been heretofore erroneously represented as being free from danger, with mud bottom shoaling gradually to its head. Our survey has in great part deprived it of that character, by the discovery of several dangerous rocky shoals lying directly in the way of vessels entering the bay, and which I now proceed to describe.

Spear Shoal. Spear Shoal has a patch of rock with 10 feet least water near its east end, and from 15 to 18 feet in other parts: it is a bank of sand and stones, resting on sandstone, about a mile long, in an east and west direction, and a third of a mile broad. From the shoalest part Cape Spear bears N.W. by N. 1½ miles, and Indian Point N.N.E. 2½ miles. The lead gives little warning in approaching this dangerous shoal from the eastward, on which side there are from 3¾ to 4½ fathoms close to it; but vessels will avoid it by coming into no less water than 4½ fathoms, as they pass it to the southward. There are 3½ fathoms of water between it and Cape Spear.

Heart Shoal. About a mile W.N.W. from Spear Shoal, and S.W. by S. 1½ miles from Cape Spear, there is Heart Shoal, with 9 feet least water, and 15 feet between it and the shore; but as it lies within

the 3 fathoms mark, it will be sufficient to refer to the chart, in addition to having pointed out its position. *Bay Verte.*

Laurent Shoal, of rock and sand, with 16 feet least water, is about three-quarters of a mile long, by half that breadth. On the shoalest part Cape St. Laurent bears N.W. by N. 2¼ miles, Ephraim Island N.W. ½ W., Indian Point N.E. by E. ½ E., and Coldspring Head S.S.W. ½ W. This shoal is also most bold on the east side, where there are 4¼ fathoms close to it. *Laurent Shoal.*

The Aggermore Rock, with 18 feet least water, and bearing N.E. ½ E., 2¾ miles from Coldspring Head, is, like Laurent Shoal, merely one of the shallowest points of an extensive rocky bank, which is thinly covered with mud and sand, and which extends out from Cape St. Laurent and Ephraim Island, in a S.E. by S. direction, so as to leave a deep channel, about 2 miles wide, between it and Coldspring Head. At low water not more than 3½ fathoms could be safely reckoned upon, in running between the Aggermore Rock and Laurent Shoal, or between the latter and the Ephraim Banks, extending off the northern shore; and even that depth could only be insured by the assistance of the Admiralty chart, for there is not more than 19 feet in several parts of these banks. *Aggermore Rock.* *Ephraim Island.* *Ephraim Banks.*

Vessels bound up the Bay Verte, should therefore keep the Nova Scotia coast on board, running up in 6¾ and 7 fathoms, till they arrive off Coldspring Head, where, at the distance of about 1½ miles from the shore, they will find the water deepen to 8 or 9, and even nearly to 10 fathoms, as they pass to the southward of the banks and shoals which have been described. After passing Coldspring Head about 3 miles, the depth of water decreases to less than 5 fathoms, and continues to shoal gradually, with mud and sand bottom, to the head of the bay. A reference to the chart will show the general extent of the shoal water off the shore; but the Boss Spit, which stretches three-quarters of a mile out from the south shore between Boss and Jackson Points, and 3¼ miles within, or to the N.W. of Coldspring Head, is so dangerous as to require particular notice. It dries out to its edge, and is so steep to, that there is 17 feet of water close to its outer point. Vessels should be careful not to go into less water than 3¼ fathoms, until they are past this sand-spit. Further up the bay there is nothing in the way, excepting two patches of stone with 3 and 5 feet water, at the distance of half and three-quarters of a mile *Direction for Bay Verte.* *Boss Spit.* *Stony Patches.*

N.N.E. ½ E. from Tignish Head. These are perhaps ballast heaps, of which there are several at the entrance of the channel of the river; but as these are all within the 2 fathoms line, they require no further notice.

CHAPTER XVI.

GULF OF ST. LAWRENCE—NORTHUMBERLAND STRAIT—COAST OF NOVA SCOTIA.

130. Lewis and Pugwash Reefs; Philip River.—131. Pugwash Roads, with directions; Pugwash Harbour and River; Tides; the Coast to the Eastward.—132. Oak Island; Fox Bay; Wallace Harbour; Oak Island Bar; Wallace Channel, with directions; Wallace Town and River; Tides; Treen Reef.—133. Saddle Island and Reef; Tatamagouche Bay and River; Brulé Peninsula, Shoals, and Harbour; John Bay, John River, and Cape John.—134. Amet Sound; Waugh Shoal; Amet Island and Shoals; The Western, Middle, and Eastern Passages into Amet Sound, with directions; Tides.—135. The Coast Eastward to Caribou Point; Caribou Reef; Doctor Reef; Caribou Harbour, directions; Tides; Caribou Channel.—136. Pictou Island Bank; Middle Shoals; Pictou Island; Pictou Harbour, with directions; Mackenzie Shoal; Lighthouse; Bars; Directions; Tides; the Town of Pictou; West, Middle, and East Rivers.—137. Chance and Little Harbours; Roy Ledge; Merigomish Harbour; Tides; Merigomish Island.

130. PROCEEDING eastward from the Bay Verte, and continuing our review of the coast from Coldspring Head, we meet with no place of use to shipping for a distance of 10 miles, or until we arrive at the contiguous rivers Philip and Pugwash, into which run the bay between Lewis Head and Pugwash Point. The last-named point bears from the former E. by S. 2¼ miles; and there are reefs off both of them which render the approach extremely perilous to strangers, and which, therefore, we shall first notice:—

LEWIS REEF extends to the N.E. 2½ miles from Lewis Head; its outer part is composed of detached rocky patches, on which there are from 14 to 18 feet of water, with a greater depth between them; but the inner part is very shallow, and has as little as 6 feet of water at the distance of 1½ miles from the shore. *Lewis Reef.*

PUGWASH REEF stretches out from the point of the same name three-quarters of a mile N.W. by W., and dries out about half that distance. There are rocky patches, with 11 and 12 feet of water, three-quarters of a mile off the point to the N. and N.E.; and others further to the eastward, a full mile out from the shore: moreover, there is uneven rocky ground, with a less depth than *Pugwash Reef.*

4 fathoms, 2 miles off shore, and which renders it unsafe for a stranger in a large ship to go within the 5 fathoms' line.

Philip River. PHILIP RIVER enters the sea immediately to the southward of Lewis Head, and between the latter and Bergeman Point. Its mouth is three-quarters of a mile wide, but a dangerous bar of sand and stones stretches across it, so as to leave only a very narrow and tortuous channel of 8 feet at low water, through which the new vessels, built up the river and brought down light, are taken with difficulty on their way to Pugwash, where they take in their cargoes, and where also the lumber and produce brought down this river are taken to be shipped. Within the bar a depth of 12 feet at low water can be carried up the river to the distance of 5 miles, and there are in some places 4 and 5 fathoms; the channel, between flats of mud and weeds, being, in some parts, not more than 20 or 30 fathoms wide. Boats can easily ascend about 9 miles, at which distance the tide ends, and there is a slight rapid. The quantity of fresh water discharged is very small, excepting in spring and autumn. There are increasing settlements on either shore of this river.

Pugwash Road. 131. PUGWASH ROAD, in the entrance of Pugwash Bay, affords excellent anchorage, in from 16 to 19 feet at low water, with sand and clay bottom, being sheltered by Philip Bar and Lewis Reef from W. and N.W., and by Pugwash Reef from E. and N.E. winds. This anchorage is exposed to winds between N.N.W. and N.N.E., but the shallow water outside prevents any sea from coming in sufficient to endanger a vessel during the summer months.

To run for Pugwash Road from the northward, the ship being in not less than 5 fathoms, proceed as follows:—Bring the English Episcopal church-steeple at Pugwash so as to be seen over and only just within the west extreme of the low cliff of Fishing Point (the east point of the bay) bearing S. by E. ¼ E.

Run towards those marks, taking care not to open out the church in the least to the westward of the point until Bergeman Point (the south point of entrance of the River Philip) bears S.W. by W. or until the depth decreases to 3¼ fathoms at low water. The vessel will then be close off the N.W. end of Pugwash Reef, and the course must be changed to S.S.W. for three-quarters of a mile, when she will be in from 16 to 19 feet at low water, with clay bottom, directly in the line joining Bergeman and

Pugwash Points, and with Fishing Point E. by S. ½ S. distant nearly half a mile. This is the best anchorage; but vessels may lie half a mile further in to the southward, or close off the bar, and in 14 feet at low water. Still further in the bay is all shoal, excepting the narrow channel, which curves round its eastern side, and leads to the harbour. To run for Pugwash Road from the eastward, the vessel being in more than the low water depth of 5 fathoms, bring Bergeman Point to bear S.W. by W., and steer for it until the church opens out to the westward of Fishing Point, when immediately change the course to S.S.W., and, having run nearly three-quarters of a mile, anchor in the same berth as before directed.

Pugwash Harbour.

Pugwash Harbour, at the head of the bay and entrance of the river of the same name, is small, but perfectly secure, and has more than a sufficient depth of water for any ship that can pass the bar, on which the depth is 14 feet at low water, in ordinary spring tides. The bar is about half a mile within the entrance of the bay, and a crooked channel, from 50 to 100 fathoms wide, and through flats of sand and weeds, for the distance of one mile, leads from it to the harbour's mouth. No directions would avail for this channel, and the assistance of one of the able pilots of the place is indispensable, and will be readily obtained in answer to the usual signal.

The town or village of Pugwash, with its wharves and small wooden English Episcopal church, stands on the east side of the entrance of the harbour. Immediately within there is a fine little land-locked basin, with a depth of nearly 7 fathoms, in which the vessels lie moored in perfect security, to take in cargoes of lumber that are brought down the river.

Pugwash River.

Pugwash River, immediately within the harbour, expands into a small lake, 1½ miles long and 1 mile wide, in which there are several small islands and peninsulas forming scenery of considerable beauty, especially when viewed from the summit of Oxley Point, at the inner side of the town. The channel through the lake, and between flats of mud and weeds, nearly dry at low water, is from 50 to 100 fathoms wide, and from 2½ to 6 fathoms deep. On the western side the narrow channel of Lime Creek leads to quarries of limestone, unfit for building, but which supply Prince Edward Island as well as the neighbouring country with lime. The river continues navigable for small vessels about 2 miles above

Pugwash River.

the lake, and for boats to a distance of 7 miles from its entrance. Before the timber was so much exhausted, Pugwash was visited annually by a considerably greater number of vessels than at present. The number is now reduced to ten or twelve sail, exclusive of several new vessels which are built there every year.

The decrease of the timber trade will, however, soon be compensated by the increase of the settlements and an improved agriculture. There are no fisheries here of any consequence, the salmon having become scarce, and the gaspereaux less plentiful than formerly. A few cod-fish are caught off the coast in spring or early summer.

There is no good watering-place at Pugwash, the supply from wells, or from springs that are frequently dry in summer, being too limited for the wants of a ship of war.

Tides.

It is high water at Pugwash on the full and change days at 10 h. 30 m., the ordinary spring tides rising 7 feet, and the neap tides 4 feet. The rate of the tidal streams, which is greatest in the entrance of the harbour, does not exceed 2 knots, unless it may be the ebb in the spring after the melting of the winter's snows. In the roadstead it seldom exceeds a knot.

Nine miles E.S.E. from Pugwash Point brings us to Cape Cliff, and 3 miles further S.E. to Oak Island, formerly called Fox Island. The intermediate coast is unbroken, and for the most part composed of clay and sandstone cliffs, of the height of 50 feet, from which the land rises to the summit of a ridge 150 feet high. It terminates in Point Mackenzie, which is separated from Oak Island by sand bars and a gully for boats nearly dry when the tide is out. There are numerous and flourishing farms along this part of the coast and the ridge just mentioned; they belong, for the most part, to Scotch highland emigrants, and are termed the Gulf Shore Settlement.

Gulf Shore Settlement.

Oak Island.

132. OAK ISLAND is low, for the most part wooded, and about a mile long, having Jerry Island, small and wooded, along half a mile to the westward of it, and on the north side of Fox Bay, just within Point Mackenzie.

Within or to the southward of Oak Island a bay runs in to the westward about 2 miles, to Mullin Point, which separates Fox Bay on the north-west from Wallace Harbour (formerly Ramsheg) on the south-west.

Fox Bay.

FOX BAY runs in 3 or 4 miles to the north-west, with a channel

through flats of tenacious red clay and weeds, that are nearly dry at low water. There are 3 or 4 fathoms of water in this channel; but a depth of 8 or 9 feet is all that can be carried over the bar at low water in ordinary spring tides.

Wallace Harbour.

WALLACE HARBOUR is the finest on this coast, excepting Pictou, having 16 feet over its bar at low water in ordinary spring tides, which rise 8 feet, so that it is capable of admitting very large ships. Its entrance, 2½ miles W.S.W. ½ W. from Oak Island, and between two sandy spits, named Palmer and Caulfield Points, is nearly 2 cables wide and 6½ fathoms deep; but the approach to this entrance, over the bar and through the bay for a distance of 3 miles, is by a crooked channel, which, although nowhere less than 160 fathoms wide, is, nevertheless, difficult without the aid of buoys or sufficient leading marks. The services of the pilots of the place will, therefore, always be necessary to insure safety; nevertheless, as cases may occur in which their aid could not be obtained, I shall endeavour to give such a description and directions as may enable the intelligent seaman, furnished with the Admiralty Chart, to take his vessel into safe anchorage within Oak Island Bar, or even to the harbour, should he so prefer.

Oak Island Bar.

OAK ISLAND BAR is of sand, and extends from Oak Island nearly 2¼ miles to the southward towards Gravois Point, which may be recognized by its being the highest part of the clay and sandstone cliffs, and by its bearing and distance from the east end of Oak Island, namely, S. ½ E. 3 miles. Within or to the westward of the bar the whole bay is shallow, excepting the ship channel leading to Wallace Harbour. The outer or eastern side of this bar may be safely approached by the lead to the depth of 4 fathoms.

The Ship or Wallace Channel.

THE SHIP OR WALLACE CHANNEL is fully 3 cables wide at its entrance, between the south point of the bar and the shoal, which stretches out 4 cables from Gravois Point, and 3½ fathoms deep at low water.

From the entrance the channel runs to the northward and westward, curving round Horton Shoal, and between it and the shallow water to the northward, which is continuous from the bar to Mullin Point, closing the entrance to Fox Bay, as has been already mentioned.

Horton Shoal.

HORTON SHOAL, of sand, stretches out half a mile to the eastward from Horton and Cantwell Points; and its northern part,

drying out to the distance of four cables from Horton Spit, can therefore generally be seen.

Horton Spit. Horton Spit, of low sand inclosing a marsh, extending to the N.W. from Horton Point, and distant 2¼ miles north-westward of Gravois Point, will easily be recognized by a vessel entering Wallace Channel. The northern end of this spit is quite bold, the channel passing close to it, and thence W. by N. three-quarters of a mile, to the entrance of the harbour. The foregoing brief description, which should be read with reference to the Admiralty Chart, is intended to give the seaman a general idea of the dangers to be avoided, and to assist him in distinguishing the points to be referred to in the following directions.

Winds from S.W. round by south and east to E.N.E. are fair or leading winds.

Wallace Harbour. Approaching from the northward, pass Oak Island at the distance of fully three-quarters of a mile, or in 5 fathoms, to avoid the reef off its east point. Approaching from the eastward, Treen Bluff (the cliffy point 2¼ miles to the eastward of Gravois Point,) must be passed at an equal distance, or depth, to avoid Treen Reef. In either case, approach the shore about half a mile to the eastward of Gravois Point, taking care not to bring the east end of Oak Island to bear less to the westward than N. by W., until the south side of Saddle Island is only one degree open to the northward of Treen Bluff, bearing E. by S. ¼ S. Steer now W. by N. ¼ N. taking all possible care to keep the island as nearly as possible one degree open,* but remembering, that the lead must be principally depended upon to guide the vessel along the edge of the shallow water off the mainland, in 3¼ or 3 fathoms at low water, or a corresponding depth at other times of tide, until Smith Point, (the eastern extreme of the mainland outside

* This mark is given as only better than none, for it is not easy to keep the island so nearly one degree open as is required. If the island and bluff be brought to touch, the vessel will be ashore on Gravois Reef, and if they be opened to the extent of two degrees only, she will be on the south point of the bar. The lead therefore, as I have remarked, must be the principal dependence. There are other marks, but they are neither of a permanent nature, nor such as can be certainly distinguished by strangers; such, for instance, is the only house at present (with a barn close to the north of it,) between Mullin and Palmer Points, which in one with the north extreme of Horton Spit, bearing N.W. ½ W., will lead in past the south point of the bar. A buoy on the south point of the bar, and two large beacons on Palmer and Horton Points, might be so placed as to render this channel comparatively safe and easy.

or to the northward of Oak Island,) appears through the middle of the opening in the trees of Oak Island, and over the low and narrow neck that joins the south-western part to the rest of the island, bearing N. ¼ W. Then change the course to N.W. by N. and a run of 500 or 600 fathoms will place the vessel within, or to the westward of the south point of the bar, in about 16 feet at low water. Let the course be now immediately changed to N. for another 500 or 600 fathoms, and when Palmer Point opens out to the northward of Horton Spit, bearing W.N.W., change the course to N.W. ¼ W., and the water will soon deepen to 4 and 5 fathoms with mud bottom, affording tolerably safe anchorage under shelter of the bar, on which the sea breaks in heavy weather. But, if it be wished to proceed to the harbour, let the last named course, N. W. ¼ W., be continued for half a mile, and Caulfield Point will open out to the northward of Horton Spit; and, immediately afterwards Smith Point (before mentioned), will open out to the westward of the west extreme of the trees on Oak Island, when the vessel must be kept gradually away to the westward, and towards Palmer Point, so as to run along the northern edge of Horton Shoal, which can generally be seen, until off Horton Spit at the distance of a cable, whence the course is W. by N. for three-quarters of a mile to the harbour's mouth. In entering keep two-thirds of the way over towards the northern, or Palmer Point, which is quite bold, to avoid the shoal water extending 50 fathoms from Caulfield Point. Anchor anywhere from 100 to 500 fathoms within the entrance, where the channel is 150 fathoms wide, and from 3 to 6 fathoms deep, with mud bottom. On either side, flats of stiff red clay, dry at low water, extend to the shore, and render the landing difficult when the tide is out. At the distance of 600 fathoms within the entrance, a middle ground commences, and diminishes the breadth of the channel to 50 fathoms. Nearly opposite to the eastern end of this middle ground, there is a narrow channel through the flats and up Lazy Bay, which runs in more than a mile to the S.E. and has, on the southern shore near its head, cliffs of gypsum 30 feet high.

Wallace Harbour.

Wallace.

Wallace, a prettily situated straggling village, with a Presbyterian place of worship, stands on the southern shore, 1½ miles within the entrance of the harbour. The land rises gradually in the rear to the summit of a ridge extending to the eastward, and attaining the elevation of 400 feet. Opposite Wallace the

Wallace. harbour or river is more than half a mile broad, whilst the channel between the flats is only 30 or 40 fathoms wide, and 5 or 6 fathoms deep. At the distance of two miles higher up, the river is divided into two branches, both of which are rendered narrow and intricate by oyster beds in the channels. The navigation of the N.W. branch is terminated, 4½ miles above Wallace, by an immense dyke or dam, 600 feet long, and constructed for the purpose of forming extensive hay meadows. The S.W. and principal branch, has a bridge over its entrance, two miles above Wallace; it has steep banks of clay and sandstone, and is navigable six miles further to the end of the tide, where we found the bed of the river nearly dry in the month of August, and a dam about to be constructed. Wallace, under the name of Ramsheg, was formerly visited annually by many more vessels than at present, the supply of lumber being then much greater; at present only a few cargoes are embarked, and two or three vessels built there every year. But, in proportion as the timber trade decreases, more attention is paid to agriculture. which is said to be improving, and the settlements increasing in the neighbourhood. There are no fisheries of consequence in a commercial point of view, the salmon and gaspereaux, or alewives, still visit the river, but in diminished numbers, and a few cod-fish are caught off Oak Island and the neighbouring coast in the months of May and June. There is the same difficulty in obtaining a large supply of fresh water at Wallace as at Pugwash; it is obtained from wells and springs, which boats can only approach at high water.

Tides. All that has been said in former directions of the velocity of the tides has no foundation in fact. Their rate is greatest in the entrance of the harbour, and there does not exceed 1½ knots during the summer months; whilst outside, in the ship channel, their rate is usually from 1¼ to 1 knot. The ebb, however, may be somewhat stronger in spring after the melting of the winter's snows. It is high water at Wallace, on the full and change days, at 10 h. 30 m.; and the ordinary spring and neap tides rise 8 and 5 feet respectively.

Treen Reef. TREEN REEF, referred to in the preceding directions, is of sandstone, stretching out half a mile from Treen Bluff to the 3 fathoms mark. The north extremes of Saddle Island and Cape John in one, bearing S.E. by E. ¾ E., clear it to the northward in 4 fathoms.

133. SADDLE ISLAND is low, wooded, three-quarters of a mile long in an E.S.E. ½ E. direction, and joined to the shore, from which it is distant in one part only 130 fathoms, by shoals at low water. Its eastern point bears S.E. by E., and is distant a long 6 miles from Oak Island. *Saddle Island.*

SADDLE REEF runs out from the east point of the island one mile to the 3 fathoms mark, and is very dangerous, having on it a round-backed rock called the Wash-ball, dry at low water, and distant one-third of a mile from the island. There are only a few feet of water much further out. In approaching this reef from the northward, the soundings give little warning, but an excellent leading mark, namely, Treen Bluff just open to the northward of Saddle Island, and bearing W. ½ N. just clears it in 4 fathoms. The lead affords the only guide for clearing it to the eastward, where it may be safely approached to 6 fathoms with care. *Saddle Reef.* *Wash-ball Rock.*

MULLEGASH POINT, the north point of Tatamagouche Bay, is one mile to the southward of Saddle Island; shallow water extends from the one to the other, and off the point to the distance of a long half mile. *Mullegash Point.*

TATAMAGOUCHE BAY, 2¼ miles wide at entrance, between the last named point and Brulè Peninsula, runs in 7 miles to the westward, affording everywhere good anchorage over a bottom of soft mud, but with insufficient depth of water for large ships far up the bay. From 5 fathoms at entrance the depth decreases to 3 fathoms at the distance of 1½ miles up the bay, and to 2 fathoms at 4 miles, the remainder being all shallow, and in part dry at low water, with the exception of boat channels leading to the Basin and to Mill brook. The only detached danger in this bay is a rock with 7 feet least water, 350 fathoms off the northern shore, and 2 miles in from Mullegash Point. Amet Island and Mullegash Point touching, and bearing E.N.E. clear it to the southward at the distance of 120 fathoms. The extent of the shallow water off shore in other parts will be seen in the chart. *Tatamagouche Bay.*

A stranger may safely approach to the low water depth of 3 fathoms in the outer part of the bay, and to 2½ fathoms further in, but in entering should keep well over to the northward, to avoid the Brulè shoals, which will be presently mentioned.

TATAMAGOUCHE RIVER, in the S.W. corner of the bay, and 5 miles from its entrance, is approached by a very narrow channel *Tatamagouche River.*

through the flats, obstructed by oyster beds, and only one foot deep at low water, in ordinary spring tides; nevertheless new ships of considerable burthen are brought down it occasionally.

Tatamagouche. The principal settlement in the bay, containing Mr. Campbell's ship-building establishment, and a Presbyterian chapel, stands on the western bank, and there is a bridge 2 miles up from the entrance of the river. Several vessels visit this river for lumber every year, they anchor off it where there are only 11 or 12 feet at low water, and are suffered to ground on the soft mud as the tide falls without injury. There are excellent trout in this river, and also in Mill Brook in the N.W. corner of the bay, and the gaspereaux visit them in their season. Three miles to the eastward of this river, on the same side of the bay, and between Chambers and Peninsula Points, is the entrance to a small harbour

Barachois. called the BARACHOIS, which runs in, within Chambers Point, S.W. 1½ miles, and is then contracted to a very narrow channel turning to the S.E. into a shallow lake one mile long, with steep banks, and an island at its head. This place, which is seldom visited by shipping, has 12 feet over its bar, and 14 feet within at low water.

Brulè Peninsula. BRULÈ PENINSULA is wooded, rather low, and united to the mainland at its S.W. end by a low and marshy isthmus. Its

Peninsula Point. N.W. extreme, named PENINSULA POINT, bears S. ½ E. 2½ miles from Mullegash Point, and has a reef extending from it 400 fathoms to the N.W., in great part dry at low water, and so bold

Brulè Point. that there is little warning by the lead. BRULE POINT is 1½ miles further to the eastward, the intermediate northern shore of the peninsula being nearly straight, and of clay cliffs 8 or 10 feet high, the whole appearing to a vessel in the offing like a low island in the centre of Amet Sound.

Brulè Shoals. THE BRULÈ SHOALS extend from Brulè Point 1½ miles to the north. They are rocky with very irregular soundings, and 9 feet least water not far from their outer edge. The N. and N.W. sides of these shoals should be approached very cautiously, for they are there extremely steep, having 4 or 5 fathoms close to the edge, and no good clearing mark. On the N.E. side the English Episcopal steeple at the River John just open to the north-

Long Point. ward of Long Point, bearing S.E. ½ E. clears them in 3 fathoms; whilst on the E. and S.E. vessels may safely approach by the lead to 3½ fathoms.

BRULÈ HARBOUR runs in within the peninsula, 2½ miles, in a W.S.W. direction, and is nearly a mile wide, but the far greater part of this large space is occupied by flats of mud and weeds. There are 14 feet on the bar at low water, and 19 feet for a short distance within, but the channel soon becomes very narrow and divided into several branches. The anchorage outside of the bar, in 3½ fathoms and mud bottom, is the best sheltered of any in the sound, and a ship or two usually lie there to take in lumber every year. In the best berth Brulè Point will bear N.W. by N. with the eastern end of Saddle Island showing open one point to the right of it; Conn's large white house* S.W.; and Cape John N.E. *Brulè Harbour.* *Anchorage.*

JOHN BAY, the next place in order to the eastward, runs in nearly 4 miles to the S.E. from Cape John to Murphy Point, which is the sandy east point of entrance of the river. It is free from detached dangers, but the shoals extending out from its shores are often very steep, and should not be approached nearer than the low water depth of 3½ fathoms, nor without due caution. Sandy shoals occupy the head of the bay, drying out nearly half a mile, and extending 1½ miles from the entrance of the river to the 3 fathoms line. *John Bay.*

THE RIVER JOHN has only one foot at low water over its bar of sand, and an irregular depth, from 3 to 11 feet, in a very narrow channel up to the bridge, a distance of nearly a mile. At Rogers Point, 1⅝ miles higher up, the river is fordable at low water; and there are deep holes and fords for 5 miles further to where the tide ends. Several new ships are built here annually, and notwithstanding the shallow bar, are taken out light and moored outside to take in cargoes of lumber which are brought down the river. The vessels lie off the entrance in from 2½ to 3½ fathoms, over mud bottom; and although the bay is completely open to the N.W. are considered safe in the summer months. *John River.* *Anchorage.*

There are extensive and flourishing settlements on either side of this river. The English Episcopal church will be known by its spire, about a quarter of a mile to the eastward of the bridge; and the Presbyterian chapel by its cupola, on the opposite or western bank, one-third of a mile from the bridge towards the river's mouth.

* Conn's House stands a short distance back from the southern shore of the harbour, and about 50 feet above the sea; it is at present the only two story house in that place, and has a large barn close to east of it. It bears S. by W. 1¼ miles from Brulè Point. *Conn's House.*

There are saw-mills 3½ miles above Rogers Point, which are said to have greatly diminished the numbers of salmon and gaspereaux which visit this stream.

Cape John. CAPE JOHN, the northern point of John Bay, will be easily recognized by its sharp-pointed cliffs of sandstone 40 or 50 feet high; and by two high rocks, always above water, on the inner part of the reef which extends from it 400 fathoms to the N.W. This reef is very steep, especially at its western point, where there are nearly 7 fathoms at low water quite close to it, being a greater depth than occurs any where else near. Off the northern side of Cape John, shallow water extends nearly half a mile, and as there are only 15 or 16 feet close within the 3 fathoms mark, large vessels should not approach nearer than the low water depth of 4 or 3½ fathoms.

Amet Sound. 134. AMET SOUND is very extensive, affording excellent anchorage for any number and class of vessels. The places described in the last article are all within this sound; Tatamagouche Bay being its south-west, and John Bay its eastern arm. Mullegash Point and Cape John, its western and eastern points of entrance, are more than 4 miles apart, but there are detached dangers outside, or off the entrance, which require to be described before directions can be given for entering by either of the three channels which they form.

Waugh Shoal. WAUGH SHOAL, from its position and steepness extremely dangerous, was not generally known before our survey. It is a rocky bank, nearly 1½ miles long by half a mile broad, with very irregular soundings from 3½ to 5 fathoms, excepting towards its northern end, where there is a patch of considerable extent with from 2 to 2¾ fathoms: twelve feet being the least water, unless it may be in unusually low tides. In this shallowest part, the shoal is very steep and should not be approached from the northward nearer than 7 fathoms, but in all other parts vessels may approach to 5 fathoms at low water. There are no clearing marks for the western side of this shoal, the lead and the bearing from the east end of Saddle Island N.E. ¾ N. are there the only guides. The N.E. side is just cleared in 5 and 6 fathoms, either by the eastern extremes of Amet Island and Cape John in one, bearing S.E. ½ S., or by the western side of Cape John and the English Episcopal steeple at the River John in one, bearing S.S.E. ¼ E. The S.E. side is cleared in 4 fathoms, by the eastern extremes of

Mullegash and Chambers Points in one, bearing S.W. ¼ S. All these objects will easily be made out excepting Chambers Point, which, being very low, is at times difficult to distinguish from the high land behind it.

AMET ISLAND is very small, covering a space of 230 fathoms east and west, with an extreme breadth of 40 fathoms. It is divided into two parts, of which the western is the largest, presenting clay cliffs on every side, excepting where they are joined together by a sandy neck. It is flat at top, bare of trees, covered with a coarse grass, and about 20 feet above the sea at high water. It was formerly much larger than at present, and the cliffs still continue to be undermined by every heavy gale and high tide, the frosts also aid in the work of destruction, so that the time cannot be very distant when there will only remain a reef of the highly inclined sandstone which at present forms the base of the island, and dries out to the distance of about two cables, excepting on the southern side where boats can generally land at all times of the tide. Shallow water extends off this island 300 fathoms to the westward, and will be cleared in not less than 3½ fathoms, if the English steeple at River John be not shut in behind the western side of Cape John; but large ships should stand in only to 6 fathoms, and will take notice, that in every other direction shallow water extends from the island to far greater distances. *Amet Island.*

THE AMET SHOALS are rocky with very irregular soundings, and are much more extensive and dangerous than have been hitherto represented. They extend nearly four miles from the island to the eastward, and also to the S.E. 2 miles towards Cape John. In both directions there are rocky patches, with no more than 5 or 6 feet, a long mile out from the island; at a greater distance than two miles there are not less than 16 feet, but there is a patch with that depth fully 3 miles to the eastward of the island. The marks for this easternmost patch are the north extremes of Amet Island and Treen Bluff in one, bearing W. ¼ N. and Cape John S.W. ¼ S. *Amet Shoals.*

Conn's House (133) and Cape John bearing S.W. clear it about a quarter of a mile to the S.E. and in 4 fathoms; but to clear the extreme east end of the shoal in a greater depth, Cape John must bear to the westward of S.W. by W. The northern side of these shoals is very steep, and should not be approached in a large ship, especially at night, to a less depth than 10 fathoms.

Treen Bluff and Saddle Island touching, and bearing W. by N. pass along the southern side in 2¾ fathoms, but if kept distinctly open will clear it in 3¼ fathoms. The dangers which have just been described form three passages into Amet Sound, all of which are wide and deep enough for the largest ships.

Western Passage.

THE WESTERN PASSAGE, between Saddle Island and Reef and the Waugh Shoal, is a mile wide, with irregular soundings from 5 to 8¼ fathoms, the lesser depth being to the southward of Waugh Shoal, where the bottom is rocky and uneven, whilst further westward it is of mud. The description of the dangers already given, with the bearings and leading marks for avoiding them, will enable any vessel furnished with the Admiralty Chart to safely run through this wide and clear passage with a fair wind. I shall add only the caution to beware of the east end of Saddle Reef, when hauling round it to the southward; 6 fathoms is near enough until Treen Bluff is seen through between Saddle Island and the main, after which Mullegash Point may be rounded by the lead in any depth that may be convenient. The anchorage is everywhere good in Tatamagouche Bay, regard being had to the size of the vessel and consequent depth required; but over towards the Mullegash side will be found best sheltered from N.E. winds.

If bound to Brulè Harbour, after rounding Saddle Reef, steer for Brulè Point, or a little to the east of it, until the mark for clearing the north-east side of the Brulè Shoals, namely, the English Steeple, John River a little open to the northward of Long Point (p. 74) comes on; then change the course, and run towards those marks till Brulè Point bears S.W. by W., when you may haul in S. by W. or S.S.W., and run by the lead along the south-east side of the Brulè Shoals, in from 3½ to 3¼ fathoms, until you reach the position which has been pointed out as the best anchorage outside the bar (p. 75). A pilot, or a previous buoying of the channel, would be necessary to take the vessel into the harbour. If bound to the anchorage off the bar of River John (p. 75), it is only necessary to run up the middle of John Bay till the water shoals to 3¼ fathoms, which is as near as a large ship should go, although distant 1½ miles from the river's mouth. Vessels of less but of considerable burthen lie moored in 2¼ fathoms half a mile further in, for the convenience of taking in lumber. In beating through the Western Passage, the west end of Saddle Island may be approached to 5 fathoms,

but 7 fathoms is near enough to its eastern end. In the board towards Saddle Reef, take care to tack with Treen Bluff open to the northward of Saddle Island (p. 73), and in the board to the northward, towards Waugh Shoal, in 5 fathoms. When standing towards Amet Island, let the leading marks for clearing the shallow water off it to the N.W. and S.W. (p. 77) be attended to. Within the sound, the directions and remarks already given, together with the Admiralty Chart, will afford sufficient guidance.

Middle Passage.

The Middle Passage, between Waugh Shoal and Amet Island, is a long mile wide from 5 fathoms to 5 fathoms on either side, clear of all danger, and from 6 to 10 fathoms deep, with sand and mud bottom. An excellent leading mark for running through this passage with a fair wind is Conn's House (p. 75) and Brulè Point in one, bearing S. by W.

With beating winds, the leading marks and directions already given for clearing Waugh Shoal and Amet Island will divest this passage of all difficulty or danger.

Eastern Passage.

The Eastern Passage, between Amet Shoals and Cape John, is a long three-quarters of a mile wide, from 3 fathoms to 3 fathoms on either side, with very irregular soundings from 3½ to 6 fathoms, and with rock, red sand, broken shells, and mud bottom.

It is difficult to carry more than 4 fathoms through at low water. To safely take this passage from the eastward with a fair wind, bring Cape John to bear to the westward of S.W. by W., or bring that cape and Brulè Point to touch, bearing S.W. by W. ½ W., and steer for them till Treen Bluff opens to the southward of Saddle Island, when change the course to W. ¼ S., which is for the mouth of Tatamagouche Bay, and the vessel will sail nearly through the middle of the passage. There will be no danger from the Amet Shoals, if Treen Bluff be kept open to the southward of Saddle Island; nor yet from the shallow water off Cape John, if it be not approached nearer than 4 fathoms, or at the utmost 3½ fathoms.

These last remarks apply also to the case of a vessel beating through this passage; and in taking it from the northward, with a scant easterly wind, the clearing marks for the east end of the Amet Shoals will safely guide her.

Tides.

It is high water on the full and change days, in Amet Sound, at about 10 h.; and the rise is from 8 to 5 feet, according as it

may be spring or neap tides. The tidal streams are very weak within the sound, setting regularly up the bays and rivers. In the Western Passage both tides in general set fairly through, the flood about W. by N. and the ebb about E. by S., at rates never exceeding 1½ knots, and usually much less. In the Middle Passage the ebb sets out to the northward and eastward less than a knot; and the flood to the westward, at the same rate, over the Waugh Shoals. In the Eastern Passage the ebb sets out to E.N.E. and the flood in the opposite direction, the rates varying from a half to one and a-half knots.

135. From Cape John to the West Gully of Caribou (15 miles S.E. by E. ½ E) the coast is nearly straight, unbroken, and free from danger, the shoal water nowhere extending beyond one-third of a mile off-shore. Cliffs of clay and sand-stone, not exceeding the height of 50 feet, and in general very much lower, form the predominating feature; but there is, nevertheless, good landing for boats almost everywhere in fine weather. From the West Gully to Caribou Point, 4½ miles further to E.S.E., the coast is formed by the northern shore of Caribou Island, appearing from a distance like several islands; but on a nearer approach the wooded parts are found to be joined together by sand-bars. The shallow water extends off-shore here to the distance of half a mile, and 5 fathoms is near enough in a large ship.

Caribou Reef. Caribou Reef, of large stones, which dry out to the distance of 300 fathoms from the shore, is very dangerous, the deep water approaching very near its north point and eastern side. It stretches out from Caribou Point to the N.N.E., half a mile to the

Doctor Island. 3 fathoms' and two-thirds of a mile to the 5 fathoms' line. Doctor Island lies to the southward of Caribou Point, forming two entrances into Caribou Harbour, of which the northern, between two sandy spits, is 400 fathoms wide, but only 4 feet deep at low water.

Doctor Reef. Doctor Reef is very dangerous, stretching out from Doctor Point to the eastward 1½ miles, to the depth of 3 fathoms, and showing rocks dry at low water to the distance of half a mile. To the southward of this reef, and two-thirds of a mile

Seal Rocks. S.E. from Doctor Point, lie the Seal Rocks, dry at low water, and from which the shallow water, forming the bar of Caribou Harbour, extends to Logan Point, the north point of Pictou Bay.

CARIBOU HARBOUR, between Caribou and Doctor Islands and the mainland, is an extensive place, being 6 miles long from the southern entrance to the West Gully, and in some parts a mile wide. The whole of this large space is occupied by shallow water, excepting the narrow channel of the harbour, which is deep enough for far larger vessels than can pass the bar, but does not run through, being lost in mud flats at the distance of 3¼ miles from the southern entrance. The West Gully is dry at low water; about a mile within it Caribou River enters the harbour, and is navigable for boats to the distance of 2 or 3 miles. There are settlements and farms along the southern shore of the harbour, also upon the inner side of the islands, and a road from the former to Pictou. The ship entrance to this harbour, between Doctor Spit and Widow Point, is only 60 fathoms wide, and the navigable breadth is reduced by the shallow water off Widow Point to 40 fathoms. The depth is here 5 fathoms; but an abrupt turn, and a tide of 4 knots, render so narrow a channel extremely difficult. Outside the entrance, the channel between the shoals becomes wider, and the depth diminishes gradually out to the bar at the distance of a mile, and over which only 9 feet can be carried at low water. The great superiority of the neighbouring harbour of Pictou renders it in the highest degree unlikely that ever this harbour will be much frequented by shipping; and its bar and entrance are too difficult and dangerous to be attempted without some special object, and then a pilot should be employed. Nevertheless, the following brief directions may be useful in illustration of the Admiralty Chart:— *Caribou Harbour.*

Take notice, that Widow Point, the south or mainland point of entrance of the harbour, is of sand and shingle; and that Oak-tree Point, a steep clay bank, with a house and barn upon it, is the first point of the mainland within the entrance, from which it is distant half a mile. Having a fair wind, and being in not less than 5 fathoms, bring the high-water extremes of Widow and Oak-tree Points in one, bearing W.N.W, ¼ W., and run towards them, till you have passed the bar in the low water depth of 9 feet, and have deepened to 13 or 14 feet. Then look out when Caribou and Doctor Points come in one, bearing N. by W. ½ W., when the vessel must be immediately sheered to the northward, sufficiently to bring Oak-tree Point and Doctor Spit in one, bearing W.N.W. ¼ W. Keep the last-named marks accurately in one, or closely touch-

ing, until you are not more than 30 fathoms from the end of the spit, when sheer to the S.W. so as to pass its south extreme at the same distance into the harbour. The channel, for the first half mile in from the entrance, is not more than 90 fathoms wide, the tide is stronger there, and the bottom not quite so good as further in, where the channel expands to 180 fathoms in width, with a depth of from 4 to 7 fathoms over mud bottom.

Tides. Diurnal Inequality. It is high water at Caribou on the full and change days, at about 10 h.; the *diurnal inequality* causing at times a difference of nearly two hours in the two tides of the same day, and also several feet in the height of the water. The rise of the highest of the two ordinary spring tides of the same day is 6 feet, and of neap tides 4 feet, there are therefore 15 feet over the bar at high water ordinary spring tides.

Caribou Channel. CARIBOU CHANNEL, between the shoals off Caribou already described, and the Pictou Island Bank, was unknown before our survey. It has sufficient depth of water for the largest ships, and in breadth, at the narrowest part, exceeds a half or one-third of a mile, according as we conceive it to be bounded on either side by the 3 fathoms, or the 5 fathoms line; but it is nevertheless difficult, because so crooked that no marks can lead through its whole extent.

The safest mode of running through this channel to the westward, is to strike soundings in 6 or 7 fathoms on the edge of the shoal water off Doctor Island, and follow it to the N.W. until Mackenzie Head is just shut in behind Logan Point, bearing S. ¼ W. Then steer from those marks, keeping the Head just shut in, and they will lead across the deep water, and afterwards along the western edge of the Pictou Island Bank out to sea. If the wind were strong from the S.W. with an ebb tide, it would be preferable to keep on the weather side of the channel, in which case the edge of the shoal water off Doctor Island should be followed further to the N.W., until Logan Point is only a little open to the eastward of Doctor Point, bearing S. ¼ E. Those points in one lead along the east side of Caribou Reef at the distance of a cable, and in 4 fathoms. Keep Logan Point a little open, and it will lead clear out to sea in not less than 4¼ fathoms. The same marks and directions, taken in reverse order, will enable a vessel to take this channel from the northward or westward, it being only necessary to add, that she should not haul to the eastward

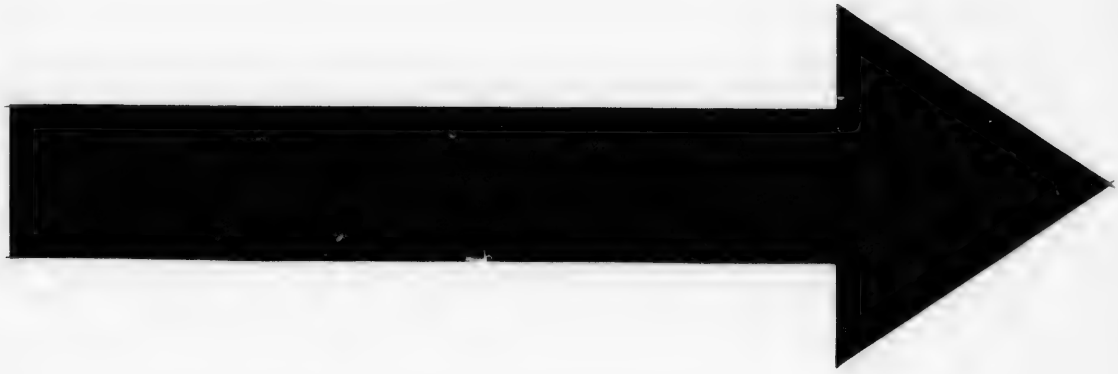
until the Hawksbill is well shut in behind Caribou Point, nor open out the former again after having shut it in, until the Light House at Pictou is open to the southward of Cole Point: the Light House and Cole Point in one, bearing S.W. by W. $\frac{3}{4}$ W., being the mark for clearing the south extreme of the Pictou Island Bank in 5 fathoms.

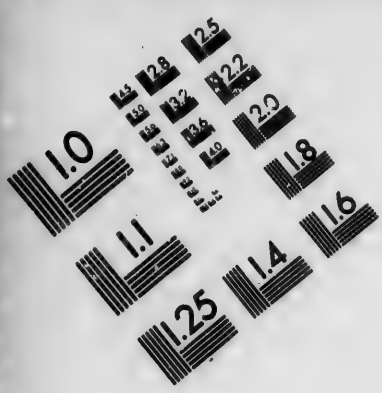
136. PICTOU ISLAND BANK extends from Pictou Island to the west and south 3½ miles, and was supposed to reach across the whole distance of 4 miles to Caribou Point, before the channel last described was know[n]. It is of a very irregular outline, of great extent, and of sa[n]dstone thinly covered with sand, gravel, mud, and broken shells. The depths are as irregular as the nature of the bottom, being from 2$\frac{3}{4}$ to 6 fathoms, excepting on the shoals now to be mentioned. *Pictou Island Bank.*

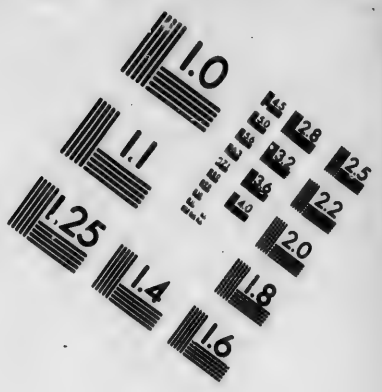
THE MIDDLE SHOALS are a chain of rocky patches, with 11 feet least water stretching across the northern part of the bank, 1½ miles, in a W. by S. direction; so as to approach within half a mile of the Caribou channel on the one hand, and within 1½ miles of the west point of Pictou Island on the other. I have little doubt that at least 3½ fathoms at low water can be carried through between these shoals and Pictou Island, although the very irregular soundings forbid absolute certainty. Rogers Point and West Point (Pictou Island,) bearing E.S.E. ½ E. will clear them to the northward in 4 fathoms, but large ships had better not approach them on that side nearer than 7 fathoms. *Middle Shoals.*

PICTOU ISLAND, 4½ miles long east and west, and 1½ miles wide, is of clay and sandstone, rising in the central parts to the extreme height of 150 feet above the sea. It is wooded on the northern side, but there are settlements and farms along its southern shore. Low cliffs form its outline with the exception of several small bays, and Rogers Point, on the south side, which is of sand, and affords the best landing for boats. *Pictou Island.*

West Point may be passed in 3 fathoms within half a mile; but on either side of the west end of the island there are rocks, nearly dry at low water, just within the 5 fathoms line and extending to the distance of 300 fathoms off shore. The shallow water runs out occasionally to the same distance off the north shore of the island, which should not be approached nearer than 8 or 9 fathoms in the night time. The southern shore may be approached to 5 fathoms; but off the East Point a dangerous reef, *West Point.*







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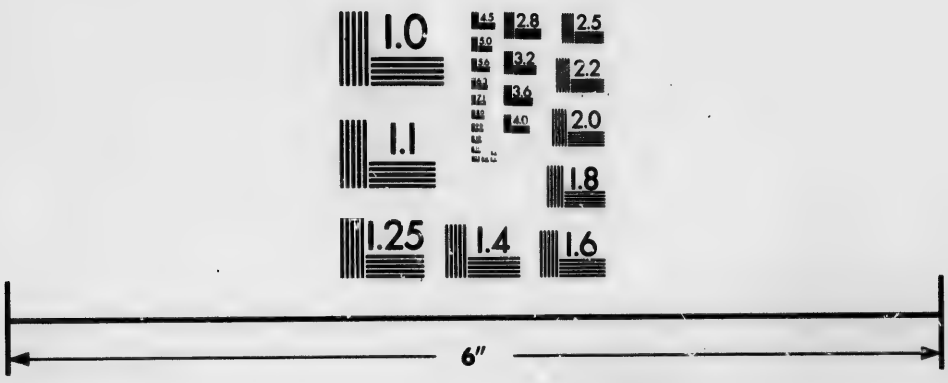

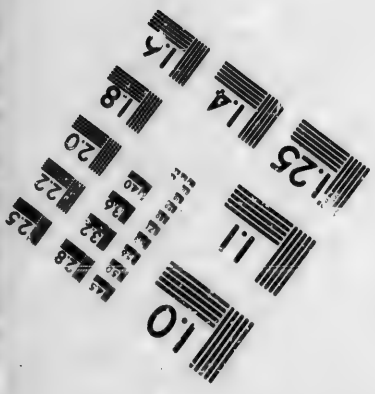

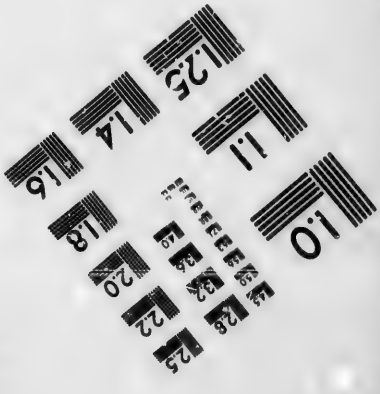

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in great part dry at low water, runs out half a mile to 3 fathoms, and nearly a mile to the 5 fathoms line. There are 9 fathoms not far off this reef both to the northward and eastward, it should therefore be approached with caution at all times, but especially at night, and with a flood tide. In most of the old charts a shoal is laid down about 4 miles to the eastward of Pictou Island, but we have not yet been able to discover any indications of its existence.

Pictou Harbour. *Coal.*

PICTOU HARBOUR, in every respect the finest on the southern shore of the gulf eastward of Gaspè, derives additional importance from the coal mines, valuable quarries of building stone, and finely settled country in its neighbourhood. It is situated 5 miles to the southward of Caribou Point, and at the bottom of a bay, which is 1¾ miles wide at its entrance, from Logan to Mackenzie Head, and 1½ miles deep. Mackenzie Head will be recognized by its sharp pointed cliff of clay and sandstone 40 feet high, and by its bearing nearly south from Logan Point.

Mackenzie Shoal.

MACKENZIE SHOAL lies off the head to the N.E.by E., its outer edge being distant seven-eighths of a mile. It is a rocky bank nearly one-third of a mile in diameter, with 16 feet least water, and with 19 or 20 feet between it and the shallow water to the westward. Large vessels should not attempt to pass within or to the southward and westward of it. The marks for clearing it to the eastward at the distance of a cable, are Caribou and Doctor Points in one, bearing N. by W. ¼ W., and the Lighthouse in one with the Town Point at Pictou bearing west will clear it to the northward at the distance of 200 fathoms. The shallow water extends a long half mile out to the northward from Mackenzie Head, and its edge in 3 fathoms, trends thence to the westward towards the Lighthouse, the whole bay on that side being shoal, with ridges of sand drying out to a considerable distance from the shore at low water. In the bay between Mackenzie Head and the Lighthouse, and on the west side of Powell Point, is Boat Harbour, the entrance of an extensive inlet or lake, full of mud and weeds, and which boats can traverse only when the tide is in. On the opposite or northern side reefs extend off Logan Point to the east and south-east, a long half mile to the line of 3 fathoms. The Lighthouse and Cole Point in one, bearing S.W. by W. ¼ W. lead over the south-eastern extreme of these reefs in 14 feet at low water, but vessels should not go nearer than 4 fathoms. Cole Point, which is of clay and sandstone cliff 30 feet high, and lies a

Boat Harbour.

Cole Point.

short mile further in or to the S.W. from Logan Point, has also a reef stretching out to the S.E. one-third of a mile, and the shallow water continues from it westward to the commencement of London Beach on the north side of the entrance of the harbour.

THE LIGHTHOUSE, of wood, painted vertically with red and white stripes, and showing a fixed light 65 feet above the sea, stands close to the water at the extremity of the sandy spit forming the south side of the entrance. *Pictou Lighthouse.*

The distance across the harbour's mouth from the sandy Spit to London Beach, is 220 fathoms, and 7 fathoms deep; but the channel over the inner bar is much narrower, and has besides a turn in it, which, together with the necessity of knowing exactly the set of the tides, renders a pilot indispensable in a large ship. *Picton Bars.*

Vessels running for the harbour must first pass the OUTER BAR, which stretches from Logan Point to Mackenzie Head, and has 21 feet at low water over a bottom of sand. After passing this bar, the depth increases to 4, 5, and 6 fathoms in the distance of about a mile, and then suddenly decreases to 19 feet on the INNER BAR, which is also of sand, and distant about 400 fathoms from the Lighthouse. After passing this inner bar, which is not above a long cable wide, the water continues deep to the entrance of the harbour. *Outer Bar.* *Inner Bar.*

There is very good anchorage between the bars although exposed to N.E. winds, and also in PICTOU ROAD which is outside of the outer bar, and where the depth is 5 fathoms, with clay and mud bottom. Vessels running or beating up to Pictou Roads at night will find the soundings in the Admiralty Chart sufficient guidance, when keeping the southern shore aboard with the prevailing S.W. winds; and on the opposite side, or with northerly winds, will have the advantage of the following excellent leading marks. Pictou Light can readily be seen in a clear night from a distance of 12 or 14 miles, and when in one with Cole Point bearing S.W. by W. ¾ W. clears the reef off the east end of Pictou Island at the distance of a long half mile; and also the southern extremity of the Pictou Island Bank in 5¼ fathoms: therefore, if beating, tack in the board to the northward, the instant the light begins to disappear behind Cole Point; and if running keep the light just open to the southward of Cole Point, bearing W.S.W., until you strike soundings in the low water depth of 5 fathoms, on the edge of the bank off Logan Point; then follow the same depth about 1½ miles to the S.W., taking care not to bring the *Pictou Road.*

Pictou Road. light o bear to the northward of west, and the vessel will be in safe anchorage in the road, where she may wait for daylight, or a pilot, according to circumstances. The branch pilots of Pictou are for the most part able and experienced men, and are always on the look out for vessels. Although 19 feet at low water, in ordinary spring tides, *can* be carried over the inner bar, yet the aid either of buoys, or of an able and experienced pilot, would be required to insure that depth; but 17 feet may be safely reckoned upon, if the following brief directions are strictly followed; and the greater depth will be carried in, if the endeavour to follow them exactly has been successful. Having a fair wind, and being further out than Mackenzie Shoal, the position of which has been pointed out, bring the lighthouse in one with Town Point at Pictou, bearing a degree or two to the southward of west; or, which will be the same thing, with Smith Point, the extreme of the land on the same side beyond the town. Run with those marks on until Logan and Cole Points come in one, bearing N.E., when instantly sheer a little to the northward, sufficiently to bring Town Point in one with the north extreme of the Sandy Spit. Keep the last-named marks exactly in one, until the Roaring Bull comes in one with Mackenzie Head, bearing S.E. by E. $\frac{1}{2}$ E., when change the course smartly and run from those marks, keeping the Roaring Bull only just in sight, until the north extreme of Moodil Point (the first point on the south side within the lighthouse) opens out to the northward of the Sandy Spit: then haul to the westward, at first towards the S.W. extreme of London Beach, and afterwards so as to pass midway between it and the Sandy Spit into the harbour.

Pilots.

Inner Bar.

A pilot would be indispensable in a large ship with beating winds, and even smaller vessels must know the tides and the place well to beat in or out with safety.

Pictou Tides. It is high water at Pictou Lighthouse on the full and change days at 10 h.; and the rise is 6 feet in ordinary spring tides, and 4 feet in neap tides. With a good tide it is possible to carry 25 feet over the bar, and 23 feet may generally be reckoned upon; the harbour, therefore, is capable of admitting very large ships, but it must be remembered, that I always speak of the best of the two tides in the 24 hours for the diurnal inequality, in the rise of the tides, which occurs more or less in all parts of the Strait, is very strongly marked

in this harbour. I may add, that in the month of August, when our observations were made, the A.M. tides were always the highest, following the inferior transit of the moon with north declination in the first part of the lunation, and the superior transit with south declination in the latter part. The true or corrected establishment, as nearly as we could deduce it from the observations of one complete semi-lunation, was at 9 h. 45 m. mean time. *Pictou Tides.*

From the lighthouse to the usual anchorage (in 6 or 7 fathoms, mud bottom) off the eastmost wharves at Pictou, the channel of the harbour is direct, nearly one-third of a mile wide, deep enough for the largest ships, and clear of danger; the Admiralty Chart will therefore afford all further information that may be necessary; for the vessel will be in safety, and may anchor anywhere within the lighthouse.

Sufficient water may be obtained here to supply the largest ships. The best watering-place is on the south shore of the harbour, three-quarters of a mile within its mouth, and there is another opposite the coal-loading place in the East River. *Water.*

THE TOWN OF PICTOU stands on the north shore of the harbour, 2 miles within the lighthouse. The houses are crowded together along the shore of a small bay, and on the declivity of a ridge, which rises to the height of 200 feet above the sea, at a short distance in rear of the town. A spur from this ridge forms Battery Point, which shelters the place from the east winds, and hides all but the steeples from vessels entering the harbour. These steeples belong to the three churches of England, Scotland, and the Antiburghers. There are also several other places of worship and an academy. These buildings are all of wood, but many of the dwelling-houses are of stone. The population is estimated at 2000. *Pictou Town.*

Opposite the town the harbour expands into three large arms, at the heads of which are the East, Middle, and West Rivers. The channels of the two last are seldom used, excepting by boats or very small craft; unless it be to bring down newly built vessels, when they are staked for the purpose. They may be navigated without much difficulty for two or three miles above their confluence; but higher up they become divided into several narrow channels, often obstructed by oyster beds, and winding through extensive flats of mud and weeds, which render landing *Pictou Rivers.*

Pictou West Arm. difficult when the tide is out. The shores of the West Arm are well settled all the way to the head of the tide, 5 miles from Pictou; and the post road to Truro and Halifax passes along the northern shore, where the scenery and views possess much beauty. Several of the hills to the westward of this arm are of considerable height; Rogers Hill, 5 miles from Pictou, is 546 feet; and Dalhousie Mountain, 3 miles further S. W., the highest point of which is 950 feet above the sea at high water. There is a road up to the summit of the former from which the view is magnificent. West River, above the tide water, is a considerable stream, although shallow and rapid. It winds its way through a beautiful and well cultivated valley, containing a large population.

Middle Arm. The Middle Arm runs in 5½ miles from Pictou to the S.W., at which distance the tide ends, and the river is rapid and fordable at low water. The shores of this arm are as yet thinly settled.

East Arm. The East Arm is navigable by vessels to the distance of 2½ miles from Pictou, to the coal-loading place, or railway *Coal Mines.* terminus from the Albion mines. Its channel, which joins the harbour directly opposite Pictou, is of the average breadth of 90 fathoms, and marked out by spruce-bush stakes driven into the mud-flats at intervals on either side. Half a mile below the loading place a bar of hard ground, with 12 feet at low water, crosses the channel; and therefore vessels must not be laden to draw more than 15 feet in neap and 18 feet in spring tides. At a short distance above the loading place the channel is so divided and obstructed by old oyster-beds, that it is difficult to carry the depth of 3 or 4 feet through at low water; and similar obstructions occur several times as we proceed up to the bridge *New Glasgow.* at New Glasgow, 6½ miles from Pictou. New Glasgow is a considerable village on the east side of the river, owing its existence to the coal mines, which are about 2 miles higher up, and to which boats can ascend with the tide. New vessels of considerable burthen are built at New Glasgow, and are taken down the river *Tides.* when light with the assistance of the tide, which rises at the bridge 6 feet in spring and 3½ feet in neap tides, the time of high water on the full and change days being at 12 h.

137. Resuming our survey of the coast to the eastward, the Roaring Bull, mentioned in the directions for Pictou, and distant 4 miles from the lighthouse, first claims our notice. It is the

cliffy north point of a small peninsula, united to the mainland at its western end by a sandy beach, and having at the other extremity the gully or entrance to CHANCE HARBOUR, dry, or nearly so, at low water. A reef of sandstone runs out to the N.E. from the Roaring Bull, 300 fathoms to the 3 fathoms line. *Chance Harbour.*

In the shoal bay between Evans and Colquhoun Points, which are distant 5 and 6½ miles respectively from Pictou Lighthouse, are two narrow, dangerous, and intricate channels, leading through shoals into LITTLE HARBOUR. Of these channels the eastern and best turns sharp in to the eastward, within Roy Island, and close round the sandy spit at its S.W. extreme. The other is only a foot or two deep, and leads into the western part of the harbour, which is several miles in extent, and broken into bays, coves, and picturesque points, but only fit for boats, being nearly all dry at low water, excepting the intricate and narrow channels. *Little Harbour.*

Off the north shore of Roy Island, at the distance of 350 fathoms, and three-quarters of a mile N.W. ½ W. from Colquhoun Point, its east extreme, lies ROY LEDGE, a small rocky shoal, with 9 feet least water. There is also a reef of sandstone in great part dry at low water, running out from Colquhoun Point half a mile to the eastward; and as all these dangers have 5 fathoms close to them, vessels should be careful not to stand into less than 6 fathoms along this part of the coast. Roy Island, so called, is united at its east end to the mainland by a long and narrow sand-bar, stretching to the S.E. across the east end of Little Harbour, to within three-quarters of a mile of King Head, which is the west point of entrance to Merigomish Harbour, and 8½ miles to the eastward of Pictou Lighthouse. *Roy Ledge.*

MERIGOMISH HARBOUR has 14 feet at low water over its bar, and sufficient depth within for large ships; but it is so intricate and difficult of entrance that no directions would enable a stranger to take his ship in safely; and the northerly winds send in so heavy a sea over the bar, that to get on shore going in would probably be attended with the loss of the vessel. The outer entrance of this harbour (three-quarters of a mile wide) is between King Head and Merigomish Point, the latter being the west extreme of Merigomish Island. The bar is formed by rocky shoals running out from these points of entrance, three-quarters of a mile to the northward. The channel over the bar, and lead- *Merigomish Harbour.*

Merigomish Harbour. ing in from it between the shoals, is a long cable wide; but the shoals are so steep that the lead affords little guidance, and there are no leading marks. The course running in is at first to the southward, and then by a sharp turn to the eastward close past Savage Point (the sandy spit at the S.W. extreme of Merigomish Island) into the harbour.

This inner entrance of the harbour, between Savage Point and the east end of Olding Island, is 240 fathoms wide; but the navigable breadth is reduced to 55 fathoms by the shoal off Olding Island, and the tides frequently run there at the rate of 5 miles an hour. Before the timber was exhausted, this harbour was frequented annually by shipping, which usually laid moored close to the sandy S.E. point of Olding Island; but at present it is seldom visited by anything larger than a coasting schooner. The pilots are therefore incompetent from want of practice, and the channel is no longer buoyed as it used to be formerly. The harbour is of great extent, running in 5 or 6 miles to the eastward, within Merigomish Island, and the sand-bar which joins it to the main-land; and also 4 miles to the westward, up a bay full of islands, coves, and precipitous headlands, which, together with well-cultivated fields, backed by mountains 800 or 900 feet high, form scenery of unusual beauty. Several small streams enter the *French River.* harbour, of which French River, opposite the east end of Olding Island, is the principal. It is approached by a very narrow channel, through flats of mud and weeds, and can be ascended by boats to the bridge, about a mile within its entrance.

Tides. It is high water at Betty Point, the S.E. extreme of Olding Island, on the full and change days at 10 h. 6 m.; and the rise is from 5¼ to 3¼ feet, according as it may be spring or neap tides; but the diurnal inequality is strongly marked here, as well as at Pictou, causing a considerable difference in the times and the heights of the two tides on the same day.

Merigomish Island. MERIGOMISH ISLAND, 3¼ miles long by 1¼ miles broad, is of clay and sandstone, belonging to the coal formation; rising to the *Coal.* estimated height of 150 feet above the sea. Thin seams of coal may be seen at Coal Point, where the cliffs, which form the northern shore of the island, are 35 feet high. Its southern shore, where there are increasing settlements, is broken into coves, cliffy islets, and peninsulated points similarly to the western part of the

harbour. A sand-bar, 2½ miles long, unites the island to the mainland to the eastward, excepting in unusually high tides, when the water washes over one part of it into the harbour. *Merigomish Island.*

From Merigomish Harbour to Cape George, a distance of 27 miles to E. by N., the coast is bold and free from danger. The land, rising from the sea to the summit of a ridge 2 or 3 miles in rear of and parallel to the coast line, is well settled, the cultivation extending occasionally to the summit of the ridge, which attains the extreme elevation of 1100 feet above the sea.

There is no harbour in this distance, the wooden pier at the village of Arisaig affording shelter only to boats and shallops in easterly winds, but none in winds from between north and west.

The remarkable rock called the Barn is nearly a mile to the east of this pier, and half a mile N.E. from Arisaig Church, which last is 14 miles from the entrance of Merigomish.

Malignant Cove, which has a small stream at its head, affording good landing for boats, is 3 miles further to the eastward, and will be known by the Sugar Loaf Hill, a mile in rear of it, and 680 feet high above the sea at high water. *Malignant Cove.*

CHAPTER XVII.

GULF OF ST. LAWRENCE.

NORTHUMBERLAND STRAIT—PRINCE EDWARD ISLAND FROM NORTH POINT, TO WEST POINT, AND TO CAPE BEAR.

138. General description of Prince Edward Island, climate.—139. Description of the West Coast; North Point and Reef; Minimegash Reef; West Reef; West Spit; and West Point.—140. Egmont Bay; Percival and Enmore Rivers; St. Jacques; Haldimand River, Bar, and Harbour; Cape Egmont and Dutchman Rock; Egmont Bank.—141. Bank of Soundings from Cape Egmont to Sea Cow Head, and Shallow Water off Fifteen Point; Sandbury Cove; Miscouche Shoal; Bedeque Harbour; Tides; The coast from Sea Cow Head to Cape Traverse.—142. Tryon River; Tryon Shoals; Crapaud Road and tides; Brockelsby River; Brockelsby Head, and Reef; Inman Rock; Marle Head; Sable Cove, and coast to St. Peters Island.—143. Hillsborough Bay; including St. Peters Island, Shoals and Spit; Spit Head, Shoal and Buoy; Trout Rock; Squa Shoal; Governor Island; Governor Shoals with FitzRoy Rock, and Buoy, Huntley Rock, &c.; Prim Point, Lighthouse, and Reef; Charlotte Town Harbour, Charlotte Town; Tides; Hillsborough, York, and Elliot Rivers; Directions for the Bay and Harbour; The eastern part of the Bay; Pilots; Anchorage under Governor Island; Pownell Bay; Gallows Point and Shoals; Orwell Bay; Orwell, Vernon, and Seal Rivers.—144. Pinette Harbour and Shoals; Tides; Rifleman Reef; Indian Rocks; Tides; Wood Islands; White Sands; and Coast to Cape Bear.

Prince Edward Island.

138. PRINCE EDWARD ISLAND, separated from the southern shore of the Gulf of the St Lawrence by Northumberland Strait, is 102 miles long, and in one part about 30 miles broad, but the breadth is rendered extremely irregular by large bays, inlets, and rivers, or rather sea creeks, which penetrate the island so that no part of it is distant more than 7 or 8 miles from navigable water. Its shape is an irregular crescent, concave towards the gulf, the northern shore forming a great bay, 91 miles wide and 22 miles deep, out of which the set of the tides and the heavy sea render it very difficult to extricate a ship when caught in the N.E. gales, which frequently occur towards the fall of the year, occasionally blowing with great strength and duration, and at such times proving fatal to many vessels.

The island is based upon red sandstone, in which coal fossils have been found but no coal; and cliffs of this rock and red clay

prevail along its shores, excepting where long ranges of sand hills and sand bars have been thrown up by the sea on the north coast. *Prince Edward Island.*

In the interior of the island, the most elevated ridges do not exceed 400 or at the utmost 500 feet above the sea, and the land is in general much lower, especially near the coast; the prevailing feature being undulating, and the alternation of hill and dale and inlet forming very pleasing scenery. The soil is in general fertile and easily worked; the climate less severe than in Lower Canada; not quite so cold in winter, nor so hot in summer, being tempered by the sea breezes; but on the other hand, the advance of spring is checked by northerly winds from the gulf, driving down ice which sometimes fills the strait as late as the middle of May, so that instead of the sudden outbreak of vegetable life which we observe in Canada, it is here frequently retarded till the month of June is well advanced, and there is seldom any settled warm weather much before July. But the most important advantage of the climate to the seaman, is the rare occurrence of the dense fogs which so frequently embarrass him in other parts of the gulf; and which in the Strait of Northumberland are seldom seen. It is worthy of remark that the prevailing S.W. wind of summer, which, in the Bay of Fundy is very generally accompanied by thick fog, parts with its moisture in passing over the heated land of Nova Scotia, and becomes a hot dry wind off its northern coast. It becomes tempered in its passage over the water of the strait, heated and dried again in some degree in passing over the island, but acquires again its moist and foggy character long before it reaches the coast of Labrador, and not unfrequently before it arrives at the Magdalen Islands.

Prince Edward Island is a colony with a distinct government. The population at the last census in 1841, amounted to nearly 50,000. The seat of government is at Charlotte Town. The export trade of the island consists of agricultural produce, lumber, and new vessels; the valuable fisheries off its coasts have been hitherto neglected, or prosecuted only to a very limited extent for home consumption: they are however now beginning to attract attention. Any further account of an island so well known, would be out of place here, and may be had from other sources; I therefore proceed to describe its coasts and harbours, with the dangers off them. *Charlotte Town.*

West Coast of Prince Edward Island.

139. The west coast of Prince Edward Island, from the north to the west point (a distance of 33 miles S.W. by W.) is unbroken, and formed of red clay and sandstone cliffs, with intervening sandy beaches affording landing for boats in fine weather. There are several ponds where boats can be secured, such as Nail and Black Ponds, and north and south Minimegash, but their outlets through sandy beaches, are all nearly dry at low water and of no use to vessels. The shallow water runs out to considerable distances off various parts of this coast, and, as a general rule for large ships, it should not be approached nearer than the depth of 11 fathoms at night, or in thick weather.

North Point.

The North Point, which is of low red cliffs, has a reef extending from it to the northward and eastward 1¼ miles to the depth of 3 fathoms, and nearly 2 miles to 5 fathoms; moreover rocky and irregular soundings from 10 to 6 fathoms continue for several miles further out to the N.E., causing at times a dangerous breaking sea. Vessels should therefore always give this reef a wide berth in thick weather, or at night, and this, the soundings in the Admiralty Chart will enable them to do; it is therefore only necessary to add, that it is most steep on the west side, where there are 10 fathoms at the distance of one-third of a mile. The inner part of the reef dries out half a mile from the point, affording shelter to fishing schooners which shift from side to side as the wind changes.

Nail Head.

Off Nail Pond and Nail Head, 6 miles S.W. by W. from the north point, the shallow water extends 2 miles from the shore.

Minimegash Reef.

Minimegash Reef is a ledge of rocks nearly dry at low water, and nearly a mile in length parallel to the shore, from which its outer edge is distant half a mile. It lies directly off the sandy beach, and across the outlet of North Minimegash Pond, which is 15 miles from the north point. There are 2½ fathoms of water between the reef and the shore, and vessels have in one or two instances been moored there during the summer months to take in cargoes of lumber, but it is a very unsafe place.

West Reef.

The West Reef is a narrow and rocky ridge 4 miles long north and south, and with very irregular soundings from 2¼ to 5 fathoms. The least water, 16 feet, is near the middle of the reef, and there are 18 feet near its southern extreme, which bears from the west point N.W. ¼ W. 3¼ miles, and is distant 2½ miles from the nearest part of the shore. Its northern end is 3¼ miles off

shore at the highest part of the cliffs between Macwilliam Cove and Cape Wolfe. There are no leading marks for this reef, and as there are 13 fathoms in one part close to its outer edge, it is very dangerous to ships rounding the west point, and can only be certainly avoided at night, or in thick weather, by following the edge of the bank of soundings off the mainland in 9 or 10 fathoms, which will lead past it at the distance of 3 miles to the westward. There is a passage within the reef, between it and the West Spit, but it is narrow with irregular soundings and strong tides, and should therefore never be attempted in a large vessel. The strength and direction of the tidal streams about this reef are very irregular, being influenced by winds, varying also with the time of tide, and probably with the age of the moon; as may be inferred from the peculiar tides at Richibucto and Shediac; (Chapter XV., 125 and 127,) and which also occur in Egmont Bay. In the deep water channel passing close on the outside of the West Reef, the rate of the stream sometimes amounts to 2½ miles per hour, causing a heavy sea when running against the wind. The usual strength and direction is shown by the arrows on the chart.

Prince Edward Island.

Tides.

The West Spit of sand upon sandstone, covered in some parts with only a few feet of water, runs out from the west point 3 miles to the N.N.W., and then turns up N. by E. within the west reef, so that the latter overlaps it at the distance of half a mile. There is a "cul de sac" between the spit and the shore, open to the northward, and in which there are from 6 to 4 fathoms of water. The only way to avoid getting into this opening, or within the west reef, when running down from the northward, is not to approach the island nearer than the low water depth of 11 fathoms.

West Spit.

The West Point consists of sand-hills 12 feet high. Excepting in the direction of the spit, the shallow water does not extend from it very far, and there is very good anchorage under it in winds from between north and east, and in 4 fathoms, fine sand bottom.

West Point.

140. Egmont Bay is 17 miles wide and 8 miles deep, the course across it from the West Point to Cape Egmont being S. by E. ¼ E. It affords excellent anchorage with off-shore winds, in from 4 to 7 fathoms, over sand and clay bottom, but vessels should not anchor in less than 5 fathoms anywhere excepting on the N.W. side of the bay, because there is rocky ground, with

Egmont Bay.

Egmont Bay. only 3½ fathoms water off the river at its head, lying just within the 5 fathoms line, and at the distance of 3 miles from the shore, whilst along the eastern shore 5 fathoms would be too near the edge of the shoals.

On the northern shore of the bay, Wolfe and Brae Rivers are sandy places dry at low water.

Percival and Enmore Rivers. PERCIVAL AND ENMORE RIVERS, at the head of the bay, are also only useful to boats and very small craft, having a depth of only from 4 to 7 feet at low water, and being approached by exceedingly narrow and intricate channels through flats of sand, clay, and oyster beds, which are dry in part at low water, and extend 1½ miles from the shore. The tides flow about 5 miles up these rivers, between low and marshy banks. The eastern side of Egmont bay should not be approached to a less depth than 5½ fathoms in a large vessel, for the shallow water off Rocky Point and the Bar of St. Jacques extends a mile from the shore. The church of St. Jacques is conspicuously situated 5 miles to the northward of Cape Egmont, having the French or Acadian Settlement along the ridge to the northward of it, and the small river St. Jacques, with its saw-mills, half a mile from it in the opposite direction. Haldimand River, shallow and running in to the southward about 2 miles, is about half way between the church and Cape Egmont, and has sand-hills on its west or outer point of entrance. From those sand-hills a sand bar, dry at low water, extends 3 or 4 miles to the northward parallel to the shore, having very narrow channels through it, which are said to shift at times during heavy westerly gales. At the time of our survey the principal channel was pointed out by two small beacons on the shore, about a mile to the southward of the church. The course in, with those beacons in one, was S.E. ¼ E., turning short to the southward within the bar into a harbour for small schooners, 5 feet deep at low water, and extending to the entrance of Haldimand River.

Cape Egmont. CAPE EGMONT is a remarkable headland with cliffs of sandstone 50 feet high. About a mile to the northward of it will be seen the Dutchman, an insulated rock 30 feet high, and lying at the distance of a cable from the shore. The cape itself is quite bold to the southward; but to the westward there is shallow rocky ground half a mile off shore, and which should not be approached nearer than 6 fathoms at low water.

Egmont Bank. EGMONT BANK, of fine red sand, and with 4 fathoms least

water, is very narrow, and 2¼ miles long in a S.S.E. and N.N.W. direction. Its northern end bears W.N.W. ½ W. 5 miles from Cape Egmont, its southern end W. ¾ S. 4 miles, from the same headland, and there are as much as 8½ fathoms and a clear channel, between it and the cape. *Prince Edward Island.*

141. From Cape Egmont to Sea Cow Head, the course is S.E. ½ E., and distance 14½ miles. A bank of comparatively shoal soundings commences at the former, and terminates at the latter headland; curving to the southward, so as to extend to the distance of 3½ miles off shore; its southern edge, in 5 fathoms, forms an excellent guide for vessels at all times; but very large ships should be careful of venturing within that depth, since there are only 3½ fathoms, with rocky bottom, in one part, as will be presently mentioned.

Fifteen Point Church and village stand near the shore, 4½ miles to the eastward of Cape Egmont, and can be seen at great distances, either from the eastward or westward. At the extremity of the point, one mile to the eastward of the church, there is a low rock above water, called the Little Dutchman, and shallow water to the distance of a long mile off shore; the depth then increases to near 4 fathoms for 2 miles further off, and then decreases again to 3½ fathoms over sandstone bottom not far from the edge of the bank, the church bearing from the shallow part nearly south, and being distant 3 miles. *Fifteen Point.*

Sandbury Cove, 9 miles to the eastward of Cape Egmont, is an extensive place, but nearly dry at low water, excepting a narrow channel through the flats only fit for boats or very small craft. Miscouche Point is the eastern point of this cove; and Miscouche Church will be seen to the N.E. of it, at the distance of 2 or 3 miles inland. *Sandbury Cove.*

Miscouche Shoal, off the point of the same name, dries out to the distance of 1½ miles, and extends 2¾ miles to the southward to the depth of 3 fathoms, sheltering the roadstead in Bedeque Bay, outside Bedeque Harbour, from westerly winds. The northern extremes of Indian Head, and Indian Island in one, bearing E. ½ N., clear the south point of the shoal in 14 feet water, but the lead will be a sufficient guide when a greater depth is required. *Miscouche Shoal.*

Bedeque Harbour, situated in the bay to the northward of Sea Cow Head, runs in to the eastward between Indian Head *Bedeque Harbour.*

Bedeque Harbour.

and Phelan Point; the former, the south point of entrance, will be easily distinguished, being faced by sandstone cliffs 25 feet high, and rising to double that height, a short distance back from the shore, whilst the other is comparatively low and wooded. The entrance between those points is 1¼ miles wide, but Indian Spit, which dries out half a mile from the head, and shallow water off the opposite shore, leave only a narrow channel into the harbour. Indian Island is a mile within the entrance, having no passage to the southward of it, and the island shoal extending from it 400 fathoms in the opposite direction. The channel passes to the northward of this shoal, and then turns to the southward, within or to the eastward of the island, where vessels may lie perfectly landlocked in 5 fathoms water. A depth of 20 feet at low water, ordinary spring tides, can be carried into the harbour, and, since the tides rise from 5 to 7 feet, there is water enough for the largest ships; but the channel is rendered so intricate by the Island shoal and Middle ground, which lies a little further out on the opposite side of the channel, that no directions would enable a stranger to enter this harbour without great risk of accident. The assistance of a pilot and of buoys becomes therefore indispensable; and it would be advisable to anchor in the bay or roadstead outside, until the former could be obtained. The anchorage in the roadstead in 22 feet at low water, sand and clay bottom, is quite safe during the summer months, although open to S.W. winds; the shallowness of the water, and the land at the distance of 4 or 5 leagues preventing any very heavy sea from coming in. Should, however, any extraordinary circumstances render it expedient to attempt running into the harbour; the best mode of proceeding would be, to run along the south-eastern edge of the Miscouche Shoal, and then eastward along the northern side of the channel, by the lead, in the low water depth of 18 feet, until Indian and Graham Heads come in one, bearing S.S.W. ½ W., when the vessel should be immediately rounded to, with her head to the southward, and anchored in about 4 fathoms, mud bottom: she will then be about 400 fathoms within Indian Spit, and in perfect safety. If the vessel be approaching from the eastward with an easterly wind, Sea Cow Head may be safely rounded at the distance of 2 or 3 cables, Graham Head may be passed at twice that distance, and then the edge of the shallow water off Salutation Cove may be safely followed by the lead, till we approach

Indian Head, where the shoal becomes very steep, as is also Indian Spit, which however can frequently be seen, being dry at low water. At a short distance within Indian Island, the harbour is divided into two arms, of which the northern, Wilmot River, is only 2 or 3 feet deep, obstructed by oyster beds, and crossed by a bridge 2 miles from the island. Vessels can ascend the southern arm 1½ miles beyond the island, the channel then becomes obstructed by oyster beds, so as to leave only an intricate channel 4 feet deep at low water; through which the new vessels built at Mr. Pope's building yard, 1½ miles higher up on the south shore, are taken at high water. Half a mile above Pope's Wharf, this arm, which is called Dunk River, divides into two narrow and shallow channels, crossed by bridges at the distance of a mile. *Prince Edward Island.*

It is high water on the full and change days, at Green's Wharf, on the north side of Bedeque Harbour, opposite Indian Island, at 10 h., the rise being 7 feet in spring tides and 5 feet in neap tides. *Bedeque Tides.*

From Sea Cow Head to Carleton Head, S.S.E. ½ E., 6 miles, and from the latter to Cape Traverse, S.S.E. ¾ E., nearly 3 miles, the points are formed of red sandstone and clay cliffs, with coves between, affording shelter and landing for boats, and also anchorage for small craft, with the wind off the land, or in fine weather. The shallow water does not extend beyond 300 fathoms off either of the three above-named headlands; but in the bays its three fathoms' edge is sometimes twice that distance from the shore; and as the line of 5 fathoms is sometimes quite close to it, the general rule for vessels at night should be not to approach nearer than the depth of 7 fathoms. In the old charts a shoal with 3 fathoms water is shown off Carleton Head; but a diligent search has convinced us that it has no existence.

142. In the first 4 miles eastward from Cape Traverse there are three coves, namely, Provost, Augustin, and Cumberland Coves, which are separated by points of cliff, and are dry at low water. *Provost and other Coves.*

Tryon River lies a mile further in the same direction, between Tryon Head and Birch Point, and is approached by a very narrow channel through the western side of the Tryon Shoals. There is 1 foot of water over the bar of this channel at low water in spring tides; but the depth increases to 11 or 12 feet for a short distance within, and then the channel becomes still narrower, *Tryon River.*

Prince Edward Island.

winding through flats of sand, mud, and weeds to the bridge, a distance of nearly 3 miles, following the channel. Small schooners enter Tryon, with the assistance of the tide, which rises from 6 to 8 feet; and there are flourishing farms on each side of the river.

Tryon Shoals.

The Tryon Shoals, of sand upon sandstone, dry out 1¼ miles off-shore, between Tryon and Brockelsby Rivers; and their S.W. extreme, in 3 fathoms, bears S. by W. ½ W., and is distant fully 2 miles from Tryon Head, the nearest part of the shore. At the distance of one-third of a mile N.E. from the S.W. point of the shoal, there are only 2 feet water over rocky bottom, and at twice that distance the sands are dry at low water. The S.W. point is steeper than any other part of these shoals, having 4½ fathoms close to it; but there is, nevertheless, sufficient warning by the lead, since the depth of 5 fathoms is nowhere less distant than half a mile from their edge. There is, moreover, an excellent leading mark, namely, Cape Traverse and Carleton Head in one, and bearing N.N.W. ¼ W., which clears the S.W. point of the shoals in 5 fathoms, and at the distance of a long half mile. Further eastward, these shoals may be safely approached by the lead to any convenient depth, so that it will be perceived that they are by no means so dangerous as they have generally been considered; nevertheless, the lead should never be neglected when in their vicinity, for the tides round the island meet off them, causing variations in the strength and set of the streams, which it would require long-continued observations to understand or account for. The stream of ebb out of Bay Verte frequently sets over towards these shoals, so that a vessel standing along the land with a scant southerly wind will often find herself dropping to leeward towards them much faster than her usual amount of leeway would lead her to expect.

Crapaud Road.

Crapaud Road is a small but secure anchorage off the mouth of Brockelsby River, and between the eastern part of the Tryon Shoals and the land. The space in which vessels may ride in from 12 to 15 feet at low water is about half a-mile long by 2 cables wide; but the anchorage for small craft, in from 7 to 9 feet, is more extensive, continuing nearly a mile further to the westward in a narrow channel or cove in the sands that dry at low water. The entrance to this road, between the eastern point of the Tryon Shoals and the shallow water off the shore to the

eastward, is only 90 fathoms wide, and 9 feet deep at low water, spring tides. *Prince Edward Island.*

To run for Crapaud Road, proceed as follows:—Bring the two white beacons that stand on either side of the entrance of Brockelsby River in one, bearing N. ¼ E., and run towards them until Wright's Barn comes on with the western side of Paul Bluff, bearing N.W. ⅝ N.; when change course towards the last-named objects, keeping them exactly in one; and when the vessel has run a cable's length, the marks for the steep northern edge of the Tryon Shoals will come on, namely, Richard Point (the extreme to the westward) in one with Birch Point, bearing N. W. by W. ½ W. Let the course towards Paul Bluff and Wright's Barn be continued for the distance of 2 cables further; then change course towards Birch Point or W.N.W.; and when you have run a cable's length, let go the anchor, and the vessel will be in the best berth, and in from 13 to 15 feet water, over sand and mud bottom that holds well. No sea of consequence ever comes into this anchorage, the sands outside being covered only to the depth of a few feet at high water; and the shallow water to the eastward, off Inman Point and Brockelsby Head, overlapping the entrance.

It is high water on full and change days at 10 h, and the rise is 8 feet in spring and 6 feet in neap tides; there is, therefore, a depth of from 15 to 17 feet at high water in the entrance or on the bar of the roadstead. The tidal streams are weak and irregular; in general their rates do not exceed half a knot at the anchorage, but they sometimes amount to 1½ knots for a short time along the edge of the shoals and in the entrance. *Crapaud Tides.*

Brockelsby River is all dry at low water, excepting a very narrow winding channel through mud flats, by which boats can ascend to the bridge 1½ miles from the entrance. The land rises to the height of 250 feet from the eastern bank of this river; and the neighbouring country is pleasing and well settled. *Brockelsby River.*

Brockelsby Head, 9 miles S.E. by E. from Cape Traverse, is the eastern point of the bay in which the river and roadstead, last described, are situated. It has clay cliffs, 15 feet high, based upon sandstone, which runs out a mile to the southward, forming a dangerous reef, which must be carefully avoided by vessels approaching Crapaud from the eastward. *Brockelsby Head.*

Inman Rock, with 4 feet least water, lies near the outer point of the reef just mentioned two thirds of a mile, due south from *Inman Rock.*

Prince Edward Island.

Brockelsby Head, and with from 13 to 19 feet of water around it. Large vessels should not approach it nearer than the low-water depth of 4½ fathoms.

Marle Head.

Marle Head, 2½ miles S.E. from Brockelsby Head, has also a reef running out from it nearly a mile, and which should not be approached nearer than 5 fathoms.

Sable Cove.

Sable Cove, between the two last-named headlands, is nearly dry at low water, and crossed by a bridge one mile from its entrance.

From Marle Head to St. Peters Island, a distance of 9 miles to the eastward, the coast is straight and unbroken, and may be approached by the lead to 5 fathoms; bearing in mind that that depth is occasionally within 2 cables' length of shallow water, extending in some places three-quarters of a mile out from the shore.

Hillsborough Bay.

143. Hillsborough Bay, having in it the principal harbour and capital town, and being the outlet of an extensive inland navigation, is the most important, as well as the largest, of any in the island. The numerous dangers it contains, having hitherto been very imperfectly known and represented, have rendered its navigation extremely difficult to strangers in a large ship; but this will now be obviated, it is conceived, by the Admiralty Chart, accompanied by the following directions. I shall first briefly describe the objects and dangers belonging to the main line of navigation, and which are on either side of the channel leading to Charlotte Town Harbour, leaving the eastern part of the bay to be afterwards noticed.

St. Peters Island.

St. Peters Island will be recognized by its position; but I may add that it is rather more than 3 miles in circumference, and of very moderate height, having cliffs of red clay and sandstone, 35 feet high, along its eastern shore. There are several farms on either side; but the central parts of the island are thickly wooded. It is joined to Rice Point, the N.W. point of the bay, and from which it is distant 1¼ miles, by sands dry at low water; boats, therefore, can only pass between it and the shore with the assistance of the tide.

St. Peters Shoals.

Shallow water extends off the island 1¼ miles to the S.W. and S.; but the soundings, deepening out gradually, afford ample guidance in that part. Further eastward the St. Peters Shoals become much more extensive, stretching out 3¼ miles E. by N.

from the N.E. point of the island. For the first 2 miles of that distance ST. PETERS SPIT of sand dries out, affording shelter to St. Peter's Road fit only for small vessels, having only from 9 to 12 feet at low water. Off the end of the spit lies the SPIT HEAD, a rocky shoal, with 8 feet least water, which extends to within a quarter of a mile of the east extreme of the St. Peters Shoals, where the Spit Head Buoy is moored in 5 fathoms, with the following bearings, viz., the west side of the Government House in Charlotte Town, in one with Battery Point, bearing N. ¼ E.; the north side of St. Peters Island W. ¼ S. and Gallows Point, just open to the northward of the dry spit of Governor's Island, S.E. ½ E.; but this dry spit can seldom be seen, and bearings alone to such distant objects are insufficient; therefore a beacon should be placed on the flat off the end of the dry spit, so as to form with Gallows Point a cross mark to insure the same position for the buoy every year. The 5 fathoms edge of the bank, forming the western side of the channel, trends due north 2¼ miles from the Spithead Buoy to about a cable's length off Block House Point, at the entrance of Charlotte Town Harbour. The edge of the St. Peters Shoals may be safely followed by the lead in 5 fathoms as far in as the Spit Head Buoy; after which the bank becomes steep, and must be approached with caution in a large vessel. THE TROUT ROCK, with 7 feet least water, lies 2 cables within the edge of the bank, and a long half mile out from Block House Point, which, kept in one with Government House, bearing N. by E. ¼ E., will just clear the rock to the eastward in about 14 feet water.

Prince Edward Island.
St. Peters Spit.
Spit-head.
Trout Rock.

On the opposite or eastern side of the channel the shallow water is continuous, from Sea Trout Point, at the entrance of the harbour, to Governor's Island, there being only a passage for boats or small craft between that island and the land to the N.E. of it. The edge of the bank, in 5 fathoms, runs to the south from Sea Trout Point to opposite the Spit Head Buoy; consequently parallel, in this part, to the bank on the opposite side, leaving a channel from 7 to 12 fathoms deep, and either one-third of a mile or half a mile wide, according as we conceive it to be bounded by the 5 fathoms' or 3 fathoms' line. The bank is most steep opposite the Spit Head Buoy, where the rocky Squa Shoal, with 10 feet least water, approaches close to its edge. Battery and Sea Trout Points in one, bearing north, form an excellent mark for this side of the

Squa Shoal.

Prince Edward Island.

channel, leading along the edge of the bank, in 4½ fathoms least water, from near Sea Trout Point, to a quarter of a mile beyond the Spit Head Buoy on the opposite side; but it had better not be followed further to the southward in a large ship, although smaller vessels may do so, until Governor Island and Gallows Point are touching; bearing in mind that it finally leads over the reef off the west end of the island.

Governor Island.

Governor Island lies 4½ miles, E. by N., from St. Peters Island; and 4 miles, S. by E. ½ E., from Block House Point. It is low, in great part wooded, based upon sandstone, and has dangerous shoals round it on all sides; but Go-

Governor Shoals.

vernor Shoals, extending from it to the S.W., and adding greatly to the dangers of the navigation, more especially claim our attention. Stretching out from the west end of the island, the sandstone reef is dry at low water for the first half mile, and has less than 3 fathoms for an equal distance further; after which rocky and irregular soundings continue to the west extreme of the shoals, in 5 fathoms, distant 2 miles from the island. Fitzroy Buoy is moored in 4 fathoms, a cable's length within the west extreme of the shoals; with the square tower of the Presbyterian church at Charlotte Town and Battery Point in one, bearing N. by E. ½ E.; and the N.W. extreme of Governor Island and

Fitzroy Rock.

Pownell Point touching, and bearing E. by N. Fitzroy Rock, with 20 feet least water, lies about a cable's length to the eastward of the Buoy, and was considered the principal danger off the island, until our survey led to the discovery of the much more dangerous rocky patches which are scattered over these shoals further to the southward.

Huntley Rock.

Of these patches, Huntley Rock, bearing S. by W. ½ W., 1½ miles from the west end of the island, has the least water, namely, 12 feet at low water; but there are others, with from 17 to 22 feet of water, as far out as 2½ miles, and the S.W. extreme of the shoals in 5 fathoms is distant 3½ miles from the island. The mark for Fitzroy Buoy, namely the Presbyterian Church and Battery Point, bearing N. by E. ½ E., clears the west side of Governor Shoals in 5 fathoms, excepting the small portion of the west extreme to the westward of the buoy.

Lighthouse.

Prim Point, the S.E. point of Hillsborough Bay, is low, with cliffs of sandstone, 10 to 15 feet high. The Lighthouse, of brick, and of the usual conical form, shows a fixed light, 65 feet above the

sea at high water, and which can be plainly seen from the deck of a vessel at the distance of 4 or 5 leagues. It is of the greatest use to vessels, especially when approaching from the eastward, guiding them, by its bearing, clear of the Rifleman and Pinette Shoals, and enabling them to enter the bay in the darkest night. It stands 50 fathoms within the S.W. extremity of the point, the west extreme of St. Peters Island bearing from it N.W. ½ W. 7¾ miles; the west end of Governor Island N. ¼ E. 5 miles; and Bell Point (the extreme to the eastward) S.E. ½ S. 10 miles. *Prince Edward Island.*

Prim Island, which has also low cliffs, is distant 1½ miles E N.E. from the extremity of the point, and is united to its north side by sand beaches, inclosing marshy ponds. *Prim Island.*

The Prim Reef, of sandstone, runs out to the westward, both from the island and the point, so as to form a forked reef, with very uneven soundings; its northern point, in 3 fathoms, bears N.W. by W. ½ W., 2 miles from the Lighthouse, and the other point W. by S. 1½ miles; but if we consider the reef as bounded by the depth of 5 fathoms (which we must do for a large ship), it is much more extensive, reaching out to the distance of 3 miles. *Prim Reef.*

The Square Tower of the Presbyterian Church at Charlotte Town, in one with Battery Point, bearing N. 13° E., will clear the 3 fathoms extreme of Prim reef; and the same Church Tower, in one with Block-house Point, bearing N. by E. ½ E., will clear the whole of the reef; but it is only in very favourable weather that such distant objects can be seen, and, therefore, the lead must be the main dependence; the soundings, combined with the bearing of the light, being amply sufficient for rounding the reef, as will be seen in the Chart. Having thus described the dangers of the approach through Hillsborough Bay, I must add a brief description of the harbour, and then give the requisite directions.

Charlotte Town Harbour is 428 fathoms wide at entrance, between the cliffs of Block House and Sea-Trout Points; but shallow water, extending from both shores, reduces the navigable width of the channel, reckoning from 3 fathoms, to 230 fathoms; and as the shoals are very steep, it would require to be well buoyed before a large ship could beat in or out with safety. Cliffs of red sandstone, from 10 to 30 feet high, form the shores on either side, the land rising gradually from them in undulations, and being partly cultivated and partly wooded. An old block-house and signal-post stand on Block-House Point, the west point of entrance. *Charlotte Town Harbour.*

Charlotte Town Harbour. The next point of cliff on that side as we proceed in is Alchorn Point, and at the distance of half a-mile from the Block-House, the remains of Fort Amherst may yet be seen on the hill, 93 feet above high-water. We have next Warren Cove and Farm, with Ringwood, the place of Captain Cumberland, and, lastly, Canseau Point, with its white beacon, 1¼ miles from the block-house.

Canseau Shoal. CANSEAU SHOAL extends off Canseau Point to the distance of 350 fathoms, and will be cleared by keeping the Block-house just open, clear of Alchorn Point; observing that the extremes of the cliffs of Block-House and Alchorn Point in one, lead over the point of the shoal in 16 feet at low water. On the opposite or eastern side of the entrance, and less than a mile within Sea-Trout Point, we have Battery Point, with its shoal; the latter running out 200 fathoms, and having on its extreme point a buoy moored in 3 fathoms at low water. Outside that depth, on either side, the water deepens abruptly, and there are 13 fathoms in the middle of the channel. The Red Beacon and Presbyterian Church Tower at Charlotte Town, clear the shoal off Battery Point in 10 fathoms, and at the distance of 60 fathoms. Within the harbour, in addition to the flats of mud and weeds extending off shore, there is the MIDDLE GROUND, with 17 feet least water, and for the situation of which I must refer to the plan of the harbour; remarking here, that the White Beacon on Canseau Point and McKinnon's loghouse in one, lead through midway between it, and the flat off the southern shore.

Middle Ground.

White Beacon.

Immediately within Canseau and Battery Points, which are the inner points of entrance, the channel expands into one of the finest harbours in the world, having depth and space sufficient for any number and description of vessels. In sailing in, we see before us York River, running in to the northward; on our right the Hillsborough, stretching away to the E.N.E as far as the eye can reach; and on our left Elliot River running in to the westward. The confluence of the streams of these three rivers, between Canseau Shoal and the mouth of York River, form THE THREE TIDES, where there is excellent anchorage, used occasionally by laden vessels preparing for sea, the usual anchorage being off the wharves of the town, where the channel is 280 fathoms wide, and nearly 10 fathoms deep.

The Three Tides.

Charlotte Town. CHARLOTTE TOWN is advantageously situated on the northern bank of the Hillsborough, a short distance within its entrance,

and at the point where the deep water approaches nearest to the shore; its wharves, however, still requiring to be 120 fathoms long to reach the edge of the channel. The town is extremely well laid out, with spacious squares and wide streets at right angles; but these are as yet thinly occupied by houses, the rapidly increasing population not exceeding 5000. The new Provincial Building, occupying the centre of the principal square, is the only stone building in the place. The houses, with the exception of 5 or 6 which are of brick, are all of wood; and so also are the three churches of England, Scotland, and Rome, and the Wesleyan and Baptist chapels. The Scotch church, which has been so often mentioned, will easily be distinguished, being the most to the westward, and appearing with the Red Beacon (used with it as a leading mark, and standing close to the water), on the left side of the town. Still further to the left will be seen the Government House, by itself, and distinguished by its colonnade. *Charlotte Town.*

No part of the town exceeds in elevation 50 feet above the sea at high-water; but the land rises gradually behind it to the height of 150 feet at the distance of 1½ miles, and is well cultivated, whilst yet sufficient wood has been preserved to give to the country an agreeable and park-like appearance.

The site of Charlotte Town, as the capital of the island, and the seat of the provincial government and legislature, appears to have been extremely well chosen, whether we regard its almost central position; its extensive inland communication by means of the rivers that unite their streams before it; or the superiority of its harbour, which possesses moreover the important advantage of having the greatest rise of tide in the Gulf anywhere below Cape Chatte, with the exception of Campbell Town in the Restigouche, which is inaccessible to very large ships. All kinds of supplies may be obtained at Charlotte Town, but water only from wells with pumps, which are numerous in the town.

It is high water on the full and change days at 10 h. 45 m., and the rise in ordinary spring tides is 9½ feet, and in neap tides 7 feet. Their rise is considerably influenced by the winds, so that we have seen spring tides during N.E. gales rise 11 feet, and neaps during S. W. gales only 6 feet; but these were extraordinary cases. The duration of the two tides is nearly equal, and their streams continue about a quarter of an hour after high and low water by the shore; running usually at *Charlotte Town Tides.*

Charlotte Town.

the rate of 1¼ knots off the town, and 2½ knots in the entrance of the harbour.*

Hillsborough River.

Of the three rivers that unite in the harbour, THE HILLSBOROUGH is the largest, being navigable for the largest ships to the distance of 7 or 8 miles, and for small vessels 14 miles above Charlotte Town; where there is a bridge 2 miles from the head of the river. There is a portage of less than a mile across, from the Hillsborough near its head to Savage Harbour on the north coast of the island. YORK RIVER, the smallest of the three, is crossed by Poplar Island Bridge, 2¼ miles from its mouth. Elliot River may be ascended 4 or 5 miles by large ships, and 9 or 10 by small craft and boats. The shores of all three rivers are settled, and the country generally fertile.

York River.

Elliot River.

The following directions are intended for the use of shipping bound to Charlotte Town; and first from the eastward with fair winds. Avoid the Rifleman Reef by attending to the soundings in the chart, and by not bringing the light on Prim Point to bear to the westward of N.N.W. A large ship should round Prim Reef by the lead in 10 fathoms; a smaller vessel may go nearer with attention to the soundings.

When the light bears to the southward of E. by S. ½ S., (the vessel being in not less than the low water depth of 10 fathoms,) or when the north side of Prim Island bears E. by S. the most northern point of the reef will be past, and the course across the bay must be North or N. ½ E. at night or in thick weather; the object being to strike soundings on the southern edge of the bank off St. Peters Island, and then to follow it to the north-eastward in 5 fathoms, until about 2 miles within the FitzRoy Rock, where there is excellent anchorage off Governor Island, and where the vessel had better wait for daylight. But if it be day and clear

* As we continued our observations here hourly, through 11 semi-lunations, with an accurate tide-gauge, it may be useful to put on record, the following resulting particulars:—

The Corrected Establishment was 10h. 18m. The A.M. tide being 10h. 24m., and the P.M. tide 11h. 7m. after transit: the mean being 10h. 45m. The mean duration of the flood (by 294 observations) was 6h. 14m.; and of the ebb 6h. 11m., the flood being rather the longest, as if the evaporation more than compensated for the trifling supply of fresh-water afforded by the small streams, which discharge into the sea-creeks, or inlets. It is worthy of remark that the Diurnal Inequality in the heights of the alternate flood tides, so strongly exhibited at Pictou, &c., is here only slightly shown; but may be plainly observed in the ebb tides, or in the difference of the levels to which the alternate tides descend.

weather, and Prim Reef has been passed as above directed, steer N. by E. ¼ E., attending to the soundings and the given leading mark, to avoid being set to the eastward too near Governor Shoals. If the Presbyterian Church can be made out, (which it most probably will be before arriving near FitzRoy Buoy,) bring it in one with Blockhouse Point, and keep it so until Governor Island and Pownell Point are touching, and bearing E. by N., when FitzRoy Buoy will be seen on the same bearing, and distant two-thirds of a mile. Steer now N.E. by E. with the flood tide, or N.E. ¼ E. with the ebb, until the west side of Government House and Battery Point come in one, bearing N. ¼ E., when change the course towards them, taking care not to open out any more than the west side of Government House, and they will lead close past the Spit Head Buoy, which must be left on the port hand or to the westward. Having passed the buoy, continue running on the same leading mark until Dockendorf's House (see plan) comes in one with Canseau Point. Keep Dockendorf's House only just in sight, as you run towards it, until you are within the Block House and Sea Trout Points; then sheer a little to the eastward, sufficiently to open out Dockendorf's barn as well as his house, 2 or 3 degrees to the eastward of Canseau Point. Keep the house and barn so open, steering about N. by W. ¼ W., and as soon as the Red Beacon and Presbyterian Church come in one, steer for them, and they will lead past the buoy on the Battery Point Shoal, and between the latter and Canseau Shoal, until the White Beacon on Canseau Point and McKinnon's Log-house come in one. The last named marks kept in one astern, will lead through between the Middle ground and the flat off the southern shore to the anchorage in mid-channel off the wharves of the town. *Prince Edward Island.*

Approaching from the westward with a fair wind, bring Governor Island and Pownel Point to touch, bearing E. by N., and run for them until the Presbyterian Church comes in sight, and in one with Blockhouse Point, bearing N. by E. ¼ E.; when steer N.E. by E. or N.E. ¼ E., according as it may be flood or ebb tide, until the west side of Government House and Battery Point come in one, bearing N. ¼ E., and then proceed as before directed.

If the leading marks cannot be made out, follow the southern and eastern edge of the St. Peters shoals in 5 fathoms up to the Spit Head Buoy, and then proceed as before directed.

With beating winds little difficulty will be experienced, regard

Charlotte Town.

being had to the soundings in the Admiralty Chart, and to what has been said of Prim Reef and Governor's Shoals. On approaching the narrow part of the channel, the buoy, or the leading marks, will point out the position of the FitzRoy Rock, the vessel making short boards off and on the edge of the St. Peters Shoals, until more than a mile within it; after which, (and in addition to the lead,) the west side of Government House and Battery Point in one, will show when to tack in the board to the westward, until well within the Spit Head Buoy; and Battery and Sea Trout Points in one, will do the same on the east side of the channel, until the vessel arrives close off the entrance of the harbour. I have already remarked, that more buoys would be required before a large ship (that is, any thing larger than a sloop of war) could safely beat in and out through the entrance; and even in smaller vessels it is necessary to be well acquainted with the place, and to be constantly on our guard against the flawing and unsteady wind which so commonly prevails there.

The eastern part of Hillsborough Bay being out of the principal line of navigation, is but little frequented by shipping; two or three sail, including new vessels built there, being the usual amount annually. On this account, and also because it abounds with dangers so that no directions would avail, I shall confine myself to a brief description, pointing out the positions of the principal dangers, and generally the nature of the navigation. An accurate chart on a large scale would be there indispensable, or else the services of competent pilots; but this last it is not easy to find at present, there being only three persons, known to us, including the harbour master of Charlotte Town, that can with any degree of propriety be termed pilots for this bay; and the amount of trade hitherto has not been sufficient to furnish them with much experience, or that precise knowledge which would insure the safety of a large ship. To the N.E. of Governor Island, under shelter of the shoal at its east point, and off the mouth of the shallow Squa Bay, there is good anchorage for small vessels, in from 9 to 12 feet with mud bottom.

Pownell Bay.

Pownell Bay requires but a brief notice, being shallow and open to the westerly winds; it affords shelter to small craft and boats near its head, which dries extensively at low water.

Gallows Point.

Gallows Point, separating Pownell and Orwell Bays, has a long reef of sandstone, and extensive shoals off it, on which are

scattered rocks covered with only a few feet of water. These shoals extend in the direction of Governor's Island, to the distance of 2 miles, and also a long mile towards Point Prim. There is, moreover, a detached shoal, with 13 feet least water, bearing W. ¼ N. 2 miles from Gallows Point. *Prince Edward Island.*

Orwell Bay, leading to Orwell, Vernon, and Seal Rivers, is 2 miles wide at its entrance, between Gallows and Buchanan Points; the latter on the southern shore being 5 miles within or to the eastward of Prim Point. As we proceed in from Prim Island towards Orwell, the shallow water extends to greater distances from the shore, until at last it stretches nearly half-way across the mouth of Orwell Bay. Its edge in 3 fathoms is there 1¼ miles out from the cliffs, and has a rock upon it with 9 feet least water, which bears N.W. by W. a long mile from Point Buchanan, and S.S.W. 1½ miles from Gallows Point. Between the shoals just mentioned, and those which stretch over to the southward from Gallows Point, the channel is 400 fathoms wide and nearly 5 fathoms deep, becoming shallower and narrower as we proceed up the bay, until off Mackinnis Point, (1½ miles in from the entrance and on the northern shore,) it suddenly contracts to less than one cable in breadth, and decreases in depth to 14 or 15 feet at low water, in spring tides. This is the bar which would require to be buoyed, as would also the channel, which becomes only a little wider within; the depth at the same time increasing to 7 or 8 fathoms between steep shoals on either side. Just within China Point (on the northern shore, and 2 miles within the bar) is the confluence of the Orwell and Vernon Rivers, and there, vessels may lie perfectly land-locked, the channel being 80 or 90 fathoms wide, and 5 fathoms deep, between mud flats dry at low water. Vessels can ascend more than a mile up the Orwell and Vernon Rivers, and new vessels are brought down the latter with the tide from a much greater distance; but both rivers are obstructed with oyster beds, at the distance of 1½ miles from China Point, and their channels higher up become very shallow and narrow, the Orwell being quite dry at low water; as is also Seal River, which enters the Vernon from the northward. *Orwell Bay.*

144. Pinette Harbour, 4 miles eastward from Prim Point, has only 2 feet at low water over its rocky and exceedingly dangerous bar. It is therefore fit only for small schooners, although it has from 3 to 4½ fathoms in its narrow channel, which *Pinette Harbour.*

runs in several miles through flats of mud and weeds, dry at low water, and then divides into several shallow branches. The bar

Pinette Shoals. is nearly a mile out from the entrance, and the PINETTE SHOALS reach to double that distance; their outer point, in 3 fathoms, extending several cables' length beyond the line joining Prim Point, and the extreme to the south-eastward, and bearing from Pinette Point W.S.W. 2 miles. There are only 9 feet of water just within this point, and only 3 feet at no great distance, the bottom being rock. These shoals are therefore very dangerous, and should not be approached nearer than the low-water depth of

Tides. 6 fathoms. It is high water on the full and change days at Pinette at 10 h., and the rise is 8 feet in spring and 5 feet in neap tides.

Flat River. FLAT RIVER, which is only fit for boats, is 3 miles to the S.E. from Pinette. Shallow water extends off Macdougall Point, its eastern point of entrance, to the distance of a mile.

Rifleman Reef. THE RIFLEMAN REEF, of sandstone, stretches out to the distance of 2 miles from Stewart Point, which bears from Prim Point S.E. ¼ S. 9 miles. On the extreme outer point of this reef, in 3 fathoms, Prim Light bears N.N.W. ¼ W. 8 miles, Macdougal Point N.N.E., and Stewart Point E. ¼ S. 2 miles. Just within this point there are 8 feet of water, and half-way between that and the shore only 5 feet, while between those and other shallow patches there are 12 feet at low water. The very irregular soundings off this reef, and the deep water close to it (16 fathoms within less than half a mile), while there is a much less depth further out, render it one of the greatest dangers in the strait. The bearing of the Light on Prim Point will greatly assist vessels in avoiding it; but at all times, either by night or by day, and especially in thick weather, it should be approached with care. There are no leading marks for its west extreme, which has 7 fathoms close to it; but the soundings give better warning there than further to the southward. The wooded point, within and opposite the Wood Islands, in one with Black Point, the extreme to the eastward, bearing E.S.E., just clear the southern side of the reef; but the safest plan, when approaching it from the southward, will be to tack as soon as the extreme of the land to the eastward appears within the Wood Islands, bearing E.S.E. ¼ E., when the vessel will be 1¼ miles from the reef.

When standing towards the reef at night, take care that

Prim Light is not brought to bear to the westward of N.N.W. If the light is not seen, a close attention to the soundings can alone ensure safety. Observe, in standing across the strait from the southward towards the reef that, after having had upwards of 20 fathoms towards the southern shore, the soundings will decrease to between 11 and 9 fathoms for several miles, and then suddenly increase again to from 14 to 16 fathoms. When the vessel arrives at this deep water she will be less than a mile from the reef, and if she ventures across it to 10 fathoms, she will be distant only 300 fathoms from its edge. *Prince Edward Island.*

Bell Point, a mile south-east of Stewart Point, and the extreme from Prim Point, is a cliff of sandstone 40 feet in height. The shallow water is continuous from the Rifleman Reef to this point, from which it extends a mile to the 3 fathoms line, having 9 or 10 fathoms close to its edge. *Bell Point.*

The Indian Rocks, considering them to be bounded by the depth of 3 fathoms, occupy a space 1½ miles in length, parallel to the shore between Bell Point and the Wood Islands, and half a mile in breadth. They are of sandstone dry to a considerable extent at low water, and their southern edge is 1½ miles off shore. The S.E. extreme of these rocks bears S.W. by W. nearly a mile from the west end of the Wood Islands, and will be cleared to the southward if the S.E. point of those islands be not brought to bear to the eastward of E.N.E. The western extreme of the rocks bears from Bell Point S. by E. 1¾ miles, and Macdougal and Pinette Points in one, bearing N. by W. ½ W., will clear it to the westward, at the distance of three-quarters of a mile; but Pinette Point cannot always be distinguished. The want of sufficient leading marks, and the deep water so close to the southward, would render these rocks exceedingly dangerous by day, as well as by night, if there were not almost always breakers or a rippling, to be seen on the part that dries. In standing towards them at night, observe that there are 10 fathoms within a quarter of a mile of their southern edge; and that 13 fathoms is near enough to their S.E. extreme, and 10 fathoms to their S.W. point, taking care not to get between the latter and the Bell Point Reef, where there are also 10 fathoms. There is a channel between the Indian Rocks and the shore more than half a mile wide, and from 4 to 16 fathoms deep; but it is of no use to shipping, the soundings being irregular, with rocky or gravelly bottom and strong tides. *Indian Rocks.*

It may as well be added, that the extreme of the land to the eastward and the inner side of the Wood Islands in one will lead in between the Bell Point Reefs and the rocks, and clear their northern edge in 5 fathoms; and that the line of Stewart and Bell Points in one, bearing N.W. ½ N., passes along their N.E. side in 3 fathoms; the former of those points must therefore be shut in behind the latter to pass between the Rocks and the Wood Islands.

Tides. The tidal streams are strong in the deep water just outside these rocks, frequently running at the rate of 3 miles per hour It is high water on the full and change days at 9¾ hours nearly, the rise being 6 feet in spring and 4 feet in neap tides.

Wood Islands. The Wood Islands are now only in part covered with timber, there being at present two families residing on them, who have cleared the greater part of their surface.

They are two small islets, and, with their connecting sand-bar, are 700 fathoms in length, parallel to the shore, from which they are distant about half a mile. The eastern or larger islet is 350 fathoms long and about 50 feet high. They both present cliffs of sandstone to seaward, and are united to the shore by a long sand-bar at their western extremity. The space between the islets and the shore forms a secure boat harbour, having an entrance from the eastward; but it is all nearly dry at low water. The shallow water does not extend off these islands to the southward beyond 2 cables; but continues from them, across the bay to the eastward as far as Little Sands, a distance of 3 miles. The anchorage to the eastward of the islands, within the distance of a mile, and at any depth from 3 to 9 fathoms, is good in N.W. winds, the Indian Rocks breaking the sea.

From Little Sands to White Sands, 6 miles E. by S., the sandstone Cliffs are 40 to 50 feet, and quite bold.

White Sands. White Sands is a settlement, receiving its name from the sandy beach of a small bay, 9 miles eastward from the Wood Islands. There is a sand-spit there, just covered at low water, which affords some shelter to boats, and as andy shoal extending to the distance of half a mile off shore. The edge of this shoal is so steep and the water near it so deep, that the lead gives no warning; but if Blackrock Point (the extreme to the eastward) be kept open to the southward of Guernsey Point (the west side of Guernsey Cove), the shoal will be cleared; for those points in one,

Blackrock Point.

bearing E. by N. ½ N. lead along its southern edge. Guernsey and Blackrock Points, distant 1½ and 3 miles respectively to the eastward of White Sands, have each large rocks above water close off their cliffs; and so also has Cape Bear, which is 600 fathoms further to the eastward; but the rock off the cape is much higher than the others, its summit being about 12 feet above the sea at high water, whilst Blackrock is only 7 feet, and the other still lower. *Prince Edward Island* *Cape Bear.*

The shore to the eastward of White Sands is formed of sandstone cliffs, which are in some places 40 feet high, without beach or landing, except at Guernsey Cove, and from which the shallow water does not extend beyond 350 fathoms until we arrive near Cape Bear.

CHAPTER XVIII.

GULF OF ST. LAWRENCE.

NORTHUMBERLAND STRAIT—THE EAST COAST OF PRINCE EDWARD ISLAND FROM CAPE BEAR TO THE EAST POINT—THE NORTH COAST OF PRINCE EDWARD ISLAND.

145. Cape Bear and Murray Head; Watering-place; Bear Reef; Fisherman's Bank; Murray Harbour; Directions; Tides; Graham Ledge, &c.—146. George Town Harbour; Panmure Ledge; Panmure Island, Shoal and Spit; Cardigan Shoal; Knoll; Thrumcap Shoal; The Town; Directions; Tides; Brudenell, Montague, and Cardigan Rivers; Cardigan Bay; Boughton Island, Ledge and Shoals.—147. Boughton or Grand River; Tides; Little River; Fortune River; Rollo Bay, and Colville River; Harvey Reef and Shallop Rock; East Lake; Tides; East Point; Milne Bank.—148. The north coast of Prince Edward Island, general remarks.—149. North Point to Cape Kildare; Tignish River and Ledge; Cascumpeque Harbour, Tides, and Bay; the Coast south-eastward.—150. Richmond Bay; Malpeque Harbour and Bay; Directions and Tides; Coast to Cape Tryon.—151. Grenville Harbour; Cape Turner; Great and Little Rustico; Stanhope Point and Reef.—152. Tracadie Harbour; Savage Harbour; St. Peter's Bay; and the Coast to the East Point.—153. Northumberland Strait; its peculiar Tides.—154. General directions for navigating the Strait of Northumberland at night or in thick weather.

Cape Bear. 145. CAPE BEAR will be known by the large rock, 12 feet high, which lies close under its cliffs of red sandstone; and MURRAY HEAD, a mile further to the northward, by its forming the extreme north-eastern point of the cliffs, where they turn abruptly to the westward towards Murray Harbour. At the distance of 350 fathoms to the southward of Murray Head, there is a fine little *Fresh Water.* stream of fresh water, worthy of notice, because there are so few places on the island where a large ship can readily water. Boats can land there in westerly winds, when vessels will find good anchorage under the head.

Bear Reef. BEAR REEF runs out to the eastward, from between Cape Bear and Murray Head, three-quarters of a mile, to the depth of 3 fathoms, and one mile to 5 fathoms; and is composed of sandstone and large stones. There is very little water over the greater part of this extensive and irregularly shaped reef, which has 7 or 8 fathoms close to its edge, and is therefore very dangerous to

vessels rounding the Cape at night or in foggy weather, when they should not approach nearer than 10 fathoms, either to the eastward or southward of the reef. *Prince Edward Island.*

There are no close leading marks for passing to the eastward of this reef, but Panmure Head and Terras Point in one, and bearing N. ¼ E., clear it at the distance of one mile in that direction.

To clear its southern side Guernsey Point must be kept well open to the southward of Blackrock Point.

Fisherman's Bank, which was first examined and laid down by us in 1844, is of sandstone, thinly covered with stones, gravel, and broken shells. Within the depth of 10 fathoms, it is 3 miles long east and west, by 1½ miles broad; but the shallow central part, with from 4 to 5 fathoms at low water, covers scarcely half that space. The least water, 4 fathoms, bears from Murray Head, the nearest land, E. S. E. 7½ miles; and there is another patch with 5 fathoms three-quarters of a mile further east. There are irregular soundings, from 10 to 20 fathoms, between this bank and Bear Reef, and in every other direction around it from 15 to 20 fathoms. It is very dangerous to large ships when there is a heavy sea running, and should not then be approached nearer than 13 fathoms, which in most parts, is close to its 10 fathoms edge, and little more than half a mile from the shallow water. The steeple of the English church at George Town, in one with Panmure Head, bearing N.N.W. ¼ W., leads over the bank in 5 fathoms; but the church can seldom, if ever, be seen from the Bank, being distant from it 15 miles. *Fisherman's Bank.*

Murray Harbour has an exceedingly dangerous bar of sand, over which 10 feet can be carried at low water in ordinary spring tides; but strong easterly winds send in so heavy a sea as to render it at times impassable, a line of breakers extending then completely across the bay from Murray Head northward to Cody Point, a distance of nearly 2½ miles. *Murray Harbour.*

On the outer edge of the bar a Buoy is moored in 3 fathoms, with the White Beacon on Oldstore Point (the sandy south point of entrance) in one with the black ball on the white gable of the Transit Barn, bearing W.S.W. ¾ W. The barn stands on the southern shore of the harbour three-quarters of a mile within the entrance, and when in one with the beacon leads in through the deepest water. There is moreover an inner buoy in the fair way,

Prince Edward Island.

half a mile within the outer one, which is intended to enable vessels to run in when hazy weather prevents the leading mark from being seen.

Proceeding in from the bar, the channel, between sandy shoals extending from the shore on either side, contracts gradually in breadth to 60 fathoms, and expands again to 200 fathoms within the entrance. The depth also gradually increases after crossing the bar, to 6 fathoms, as we pass close to the steep sandy beach of Oldstore Point on which the beacon stands. To run in proceed as follows:—Look out for the outer buoy, or, being in not less than 5 fathoms, bring the White Beacon and the black ball on the white gable of the Transit Barn in one, bearing W.S.W. ¼ W., and keep them so exactly until the vessel arrives within 200 or 150 fathoms of the beacon, when haul a little to the northward, so as to pass Oldstore Point at the distance of 20 or 30 fathoms, and anchor within, or to the west of it, at any distance not exceeding a quarter of a mile, because further in, the channel which passes to the southward of all the islands, becomes very intricate and would be difficult to follow without a pilot. The depth, in the anchorage recommended, is from 3 to 5 fathoms with sand and clay bottom, and a tide of 2 knots. It is high water on the full and change days at $9\frac{1}{12}$ hours after the moon's transit, and the rise is 6½ feet in spring tides, and 3½ feet in neap tides. The entrance of Murray Harbour, between Oldstore Point and the long sandy spit that runs out to the S.W. from Cody Point, is more than half a mile wide, but it is all nearly dry at low water, excepting the channel already described. Within this entrance the harbour is of great extent, containing five wooded islands, and several rivers or sea creeks on either side, besides the main inlet, Murray River, which is much larger than the rest, and navigable to the distance of 6 miles from the entrance, or nearly to the dam which has been constructed across it near its head. There are flourishing settlements all around, the principal one being at South River, where the English Episcopal church, distinguished by its steeple, will be seen on the southern shore 2 miles within the entrance of the harbour.

Tides.

Murray River.

Graham Point and Ledge.

Proceeding with our survey of the coast from Murray Head, a distance of 4½ miles, N.N.E. ½ E., brings us to Graham Point, from which Graham Ledge runs out one mile to 5 fathoms, and ¾ of a mile to 3 fathoms. The shallowest part of this ledge, with

6 feet least water, bears E.N.E. 400 fathoms from the extremity of the point. There is also a rocky shoal one mile further to the northward, which runs out two-thirds of a mile from between Terras and Smith Points, and foul ground with from 4 to 5 fathoms at low water extends off the latter to the distance of 1½ miles. The soundings are very irregular off this part of the coast, between Graham Point and Panmure Head, varying from 13 fathoms mud to 5½ fathoms rock, until we get beyond 3 miles out from the shore. *Prince Edward Island.*

146. George Town Harbour, sometimes called Three Rivers, is situated on the S.W. side of Cardigan Bay, 3 miles within or to N.W. by N. from Panmure Head, which is distant 9 miles to the northward from Cape Bear. It is the finest harbour in the southern part of the gulf, excepting Charlotte Town, having depth of water and space sufficient for the largest ships. The rise of ordinary spring tides being only 5 feet is a great disadvantage as compared with Charlotte Town Harbour, but, on the other hand, the ice does not, in general, form in it so soon in the fall by several weeks, and also breaks up earlier in the spring, so that vessels can enter it later and leave it earlier, which is an important advantage in a climate where the navigation is closed by ice for so long a portion of each year. The channel leading to the entrance of the harbour passes between the shoals off Panmure Island and Cardigan Point. A brief description of these shoals, and the objects for avoiding them, will be useful in illustration of the Admiralty Chart, and to render the directions intelligible. *George Town Harbour.*

Panmure Ledge, of sandstone, covered by only a few feet of water, runs out 600 fathoms from Panmure Head, the east extreme of Panmure Island, to the depth of 3 fathoms; and its outer extreme, in 5 fathoms, and 900 fathoms off shore, will be just cleared by keeping Graham Point and Murray Head in one, bearing S.S.W. ½ W. *Panmure Ledge.*

Panmure Island is about 2 miles long by 1 mile broad, in great part wooded, and has cliffs of red sandstone 40 feet high along its north-eastern shore. It is joined to the land to the southward by a narrow sand-bar always above water, and more than a mile in length. Within this bar is St. Mary Bay, and further westward Sturgeon and Livingstone Bays; all three having a common entrance to the north-west of the island, between Panmure Spit and the shoal off Grave Point, and which, although very narrow, has depth of water sufficient for the largest ships. *Panmure Island.*

Panmure Shoal and Spit.

PANMURE SHOAL extends to the distance of two-thirds of a mile off the northern shore of the island; and PANMURE SPIT, which forms the western side of the shoal, and is of sand dry at low water, equally as far to N.N.W. from Billhook Point, the N.W. extreme.

The Panmure Buoy (white) is moored close to the steep edge of the shoal, in 5½ fathoms, with M'Donald's house and store, on the west side of the island, just open to the westward of Billhook Point, bearing S. by W. ¼ W. two-thirds of a mile; and the English Episcopal steeple at George Town on with the east side of the THRUMCAP, bearing N. by W. ¼ W. The Panmure Shoal and Spit, and further in the equally steep shoals off Grave and St. Andrew's Points, form the dangers on the south side of the entrance channel to George Town Harbour.

Cardigan Shoal.

On the opposite side we have the CARDIGAN SHOAL, extending to the south and east from Cardigan Point, which separates Cardigan River from the harbour. This extensive shoal is of sandstone, and has only 1 fathom at low water, three-quarters of a mile out from the shore. At the distance of one cable further out there are 3 fathoms, and the Red Buoy, moored on its S.E. extreme in 5 fathoms, is distant 1¼ miles from the low cliffs at the extremity of the point. At this buoy Panmure Head (distant 1¼ miles) should be in one with Terras Point, bearing S. ¼ W.; and French Point should be seen over the sandy spit of Aitkins Point, and in one with its wooded extreme, bearing N.W. by W. ¼ W. At the distance of one mile W. by N. from the Red Buoy, and on the S.W. extreme of Cardigan Shoal, a Black Buoy is moored in 4 fathoms, with Cardigan Point bearing N.N.E. ¼ E.; Brudenell Islet and Gaudin Point touching, and bearing N. W. ¼ N.; and the White Buoy on Panmure Shoal S.W. ¼ W., distant one quarter of a mile. In a direct line from the red to the black buoy of the Cardigan Shoal, there is not less than 3½ fathoms, and the southern edge of the shoal in 5 fathoms, may be followed by the lead from the one to the other. From the black buoy the western edge of the shoal trends northward to within one cable of the shore, sheltering the outer anchorage (in 5 fathoms mud bottom), between it and the Knoll.

The Knoll.

THE KNOLL, a small sandy shoal, probably based upon sandstone, and with 9 feet least water, lies just outside the entrance of the harbour, and directly in the way of vessels. To enable vessels

to beat in and out with safety a buoy should be placed on its S.W. extreme, with the following marks and bearings; namely, Boughton Island and Cardigan Point touching, and bearing E. ¼ N.; Grave and Thornton Points in one, S.W. ½ W. The west side of the Thrumcap N.N.E. 425 fathoms, Cardigan Black Buoy S.E. ¼ E. nearly one mile; and lastly, the Thrumcap Black Buoy (if properly placed), N.N.W. 370 fathoms, and in one with Gaudin Point. *Prince Edward Island.*

The Thrumcap Shoal runs out from the Thrumcap (which is a small wooded and cliffy islet joined to the eastern point of entrance of the harbour by a sand-bar) 305 fathoms, in a W. by S. direction. On its S.W. extreme, in 3 fathoms, a Black Buoy is moored with the Cupola of the Roman Catholic church and the steeple of the English Episcopal church in one, bearing N. ¼ E.; the N.W. side of the Thrumcap E. by N., and the Beacon at Whiteman's Wharf S.W. ¼ S. This shoal, which is of sand, and dry at low water nearly all the way out to the buoy, completes the shelter of the harbour, preventing any sea of consequence from rolling in. The entrance, between the Thrumcap and St. Andrew's Point on the south-western shore, is ½ of a mile wide, but the shoals diminish the breadth of the channel to 230 fathoms, and it is still narrower at the Knoll, where it is scarcely 200 fathoms; whilst further out still, between Cardigan and Panmure Shoals, it is no more than 250 fathoms; considering it to be bounded by the depth of 3 fathoms on each side. Within the Thrumcap the northern shore of the harbour forms a bay ¼ of a mile wide, the N.W. point of which is Gaudin Point, having a sandy spit running out from it ¼ of a mile to S.W. The usual and best anchorage for large vessels, is between this spit and the Thrumcap Shoal, in 5 fathoms mud; but smaller vessels may anchor further within the bay, and will find 2¼ fathoms within the distance of one cable from the wharf at the tow... *Thrumcap Shoal.*

George Town, the capital of King's County, is well situated on the northern shore of the harbour, just to the eastward of Gaudin Point. Its streets, wide and at right angles, are scarcely as yet marked out by houses, the population amounting only to 450, but it is rapidly increasing. The principal buildings are the two churches which have been mentioned, and the court house: they are all of wood. *George Town.*

From what has been said of the narrowness of some parts of the

Prince Edward Island.

channel, it will appear manifest that a competent pilot, acquainted with the set of the tides, &c., would be required to beat a large ship in or out, but with a leading wind and fine weather the intelligent seaman will find no difficulty with the aid of the Admiralty Chart, the foregoing description, and the following brief directions.

Observe that, in addition to the aid afforded by the buoys, there is a Beacon at the inner end of Whiteman's Wharf on St. Andrew's Point, which kept in one with the centre of his house, bearing N.W. by W. ½ W., leads in between Panmure and Cardigan Shoals nearly in mid-channel, until Brudenell Islet and Doctor's Point come in one, bearing N.N.W. ½ W.; when the last-named objects kept touching lead into the harbour.

Having therefore, a fair wind, that is, any wind from S.W. round by south and east to N.E., proceed as follows:—

Directions.

Approaching from the eastward, pass Boughton Point, the S.E. extreme of Boughton Island, at the distance of 1 mile; steering W.N.W. ½ W., and looking out for the Beacon and Whiteman's House, which will be a little on the starboard-bow. As soon as the vessel arrives within 1 mile of Panmure Island, bring the beacon and house in one, and steer for them N.W. by W. ½ W., or as may be necessary to keep them so. When Panmure Head and Terras Point come in one, the red buoy on the Cardigan Shoal should be seen bearing N. ½ E., and distant half a mile, and the vessel should be in 7 or 8 fathoms water. At the same time, the black buoy of the Cardigan and white buoy of the Panmure Shoal should be seen on her starboard and port bows respectively, and at the distance of 1 mile. Continue to run towards the beacon and house exactly in one (passing between the last-named buoys), until you have approached within half a mile of the beacon, when Brudenell Islet and Doctor's Point will be seen (up Brudenell River to the N.W. of the town), touching and bearing N.N.W. ½ W. If you can now see the Thrumcap Buoy, which should bear N. by W. ½ W. ½ of a mile, you will have only to steer so as to give it a berth of one cable as you pass to the S.W. of it into the harbour; but, if the buoy be not seen, run towards Brudenell Islet and Doctor's Point touching, until the Roman Catholic church cupola is seen well to the N.W. of the English Episcopal church steeple, or until the latter bears not less to the eastward than N. by E. ½ E., where you may haul

towards it, and choose your berth in from 6 to 3 fathoms over mud bottom. *Prince Edward Island.*

Approaching from the southward, round Panmure Ledge by the lead in 7 fathoms, or by keeping Murray Head open to the eastward of Graham Point till the north side of Panmure Island bears as far to the westward as N.W. by W. ½ W., when the vessel may haul in to the north-westward, following the northern edge of the Panmure Shoal until the Beacon and House can be made out, and brought in one, as before directed. If it should so happen that, from thick weather, or other cause, the Beacon and House cannot be seen, the northern edge of Panmure Shoal may safely be followed by the lead, in 6 fathoms, to within half a mile of the White Buoy, when the Shoal becomes too steep to be safely followed further. In like manner the southern edge of Cardigan Shoal may be followed, from the Red Buoy to the Black Buoy on its S.W. extreme, as I have already remarked; and the vessel may either bring up, in the outer anchorage, half a mile within the latter in a line towards the Thrumcap, or proceed into the harbour, as may be expedient. Between Gaudin Spit and Aitkin's Point, the channel of the harbour is only 175 fathoms wide from 3 fathoms to 3 fathoms, and 6½ fathoms deep; but it expands again immediately, affording excellent anchorage all the way to Brudenell Point, one mile above the town.

Almost all kinds of supplies may be obtained at George Town, but fresh water in large quantities only from wells, as in most other parts of the island.

It is high water on the full and change days at 8 h. 40 m. after the moon's transit, by the mean of the morning and evening tides; the latter being generally the latest by about an hour in the summer months. The rise is 5 feet in spring, and 3½ feet in neap tides. *Tides.*

The rate of the tidal streams does not exceed ¾ of a knot.

Brudenell and Montague Rivers, which unite their streams at Brudenell Point, require only a brief notice. The former, the northernmost of the two, is navigable for large vessels to Brudenell Islet, 1½ miles up, and for small craft and boats about 3 miles further, to the head of the tide. Vessels of considerable burthen can ascend the Montague nearly to the bridge, a distance of 4 miles, and boats about a mile further to where the tide ends. The fresh water streams at the heads of these sea creeks are mere brooks. *Brudenell and Montague Rivers.*

Cardigan River.

CARDIGAN RIVER, which with the other two has occasioned the town and harbour to be called Three Rivers, is much the largest of the three, being navigable for the largest ships to the distance of 5 miles above Cardigan Point; and smaller vessels can ascend it 2 miles further, or to within half a mile of the head of the tide, where the fresh water is insignificant in quantity. This river, which enters Cardigan Bay on the N.E. side of Cardigan Point, is rendered somewhat difficult of entrance by M'Phee Shoal and Maitland Flat, which are very steep, and contract the navigable channel to two cables in breadth, the depth being 7 fathoms.

There are no sufficient natural marks for clearing these dangers, and therefore buoys or beacons would be required if ever the river be resorted to by large vessels; at present an occasional new ship, and a few small coasting schooners, are all that are ever seen there.

Cardigan Bay.

CARDIGAN BAY, in which the harbour and rivers last described are situated, is 3¼ miles wide at its entrance between Panmure and Boughton Islands. It affords excellent anchorage in from 6 to 10 fathoms, mud bottom, with winds off shore, but winds from E.N.E., round by East and South to S.W. by S., send in a heavy sea. I have already noticed the dangers in the south-western part of the bay on the way to George-town Harbour, and must now briefly notice those on its north-eastern side.

Boughton Island.

BOUGHTON ISLAND, not quite so large as Panmure Island, is united on the north-east side to Bruce Point by a dry sand-bar one mile in length, and is divided into two parts, of which the southern, one-third of a mile long, is joined to the remainder by a double bar of sand and shingle inclosing a large pond. BOUGHTON LEDGE runs out at this bar to the distance of 600 fathoms to the eastward, and has rocks near its outer extreme which always show. Boughton Point, the south extreme of the island, is a cliff of red sandstone 30 feet high, and has a rock that dries off it, and shallow water to the distance of half a mile.

Boughton Ledge.

Rocky and irregular soundings, 4 to 5 fathoms, run out to E.S.E. still further, and therefore a large ship, at night or in thick weather, should not round the point in less than 9 or 8 fathoms.

Off the west side of the island, a bank, with from 3 to 5 fathoms, extends to the distance of 1½ miles; and further to the westward there are dangerous shoals; which together with Boughton Spit, and the Musquito Sands, extend along the N.E. shore of the bay

nearly to Maitland Point at the entrance of the Cardigan. There are narrow and intricate channels between these shoals, and the land to the northward, which lead into Launching Bay. Large ships should not stand into less than 5 fathoms at low water on this side of the bay. *Prince Edward Island.*

Off Boughton Sand-bar and Bruce Point the shallow water extends two-thirds of a mile, and in Boughton Bay the line of 3 fathoms is a mile out from the shore.

147. Boughton or Grand River, 5 miles N.N.E. from Boughton Point, has a dangerous bar of sand one mile out from its entrance, and over which 6 feet, at low water, ordinary spring tides, can be carried in a very narrow channel marked out by three buoys. The outer buoy is moored in 3 fathoms, the next in 2 fathoms, and the inner one in 11 feet; the bar of 6 feet being between the two last. At a short distanee within the inner buoy, the sands on each side are dry at low water, and the channel can generally be seen all the remainder of the way to the entrance, where it passes close round the northern point of the long sand-bar which stretches across from the southern shore, to within 175 fathoms of Bank's Point, where there is a wharf and ferry. Immediately within the entrance the inlet is a mile wide, but the channel is divided, narrow, and intricate, and marked out by stakes between sandy shoals for about 1 mile; after which it is clear, wide, and from 3 to 5 fathoms deep, to the Narrows, 3 miles from the entrance. Boats can ascend 3 miles further, or to the bridge. There are flourishing settlements on each side of this extensive inlet, which if it were not for the shallow bar would be a fine harbour. *Boughton or Grand River.*

It is high water on the full and change days, at the Ferry Wharf, at 8 h. 40 m.; and the rise is 4 feet 10 inches in spring tides, and 2 feet 8 inches in neap tides. The rate of the tides in the entrance is 2 knots. *Tides.*

Little River, Fortune River, Rollo Bay, and Colville River, occurring in order as we proceed along the coast to the N.E., are tide inlets nearly barred up with sand, and having small streams at their heads; they are places only fit for small craft and boats, having from 3 to 5 feet over their bars at low water. *Little and Fortune Rivers, Rollo Bay, and Colville River.*

The last named, situated in Colville Bay between Souris Head and Swanton Point, and distant 12 miles N.E. of Boughton Point, is the most important, being the place where the produce

Prince Edward Island. of the more eastern parts of the island is principally shipped. The settlement of Souris, and the Roman Catholic church, will be seen on its eastern shore.

Colville Bay. There is good anchorage in Colville Bay with off-shore winds. Sharp cliffy headlands and points of red sandstone separate the bays in which these rivers are situated, the cliffs being from 25 to 50 feet high, and the shallow water off them not extending beyond the distance of 300 fathoms, excepting at Eglington Point (separating Bay Fortune from Eglington Cove), where the reef is very shallow for the first 400 fathoms out from the shore, and continues 600 fathoms further with from 3 to 4¼ fathoms over rocky bottom; but this is within the line joining Howe Point and Souris Head, and therefore out of the way of vessels running along the coast. To the eastward of Colville Bay the coast is bold

Harvey Reef and Shallop Rock. and free from danger, excepting Harvey Reef, which extends 400 fathoms from Harvey Point, and has on it Shallop Rock, which always shows. Harvey Point is 5 miles from Colville Bay, and will moreover be known by its being the eastern point of Harvey Cove, in which there are some very remarkable and high sand-hills. At Basin Head, 1 mile further to the eastward, the cliffs terminate, and sand-hills and sandy beach form the shore nearly all the way to the East Point, a distance of nearly 9 miles.

East Lake. In this distance the East Lake is all that requires notice. It is a shallow and narrow pond, within the sand-bars, extending from Basin Head to within two miles of the East Point, and having a narrow outlet (two miles from the Head), which is nearly dry at times at low water. Boats and small craft enter it for produce, the country being well settled along its northern shore.

Tides. It is high water, full and change, at 8¼ hours, and the rise is 3¼ feet in spring tides, and 2¼ feet in neap tides.

East Point. The East Point is a cliff of red sandstone from 30 to 60 feet high, from which a reef runs out ¼ of a mile to 3 fathoms, and not quite a mile to 5 fathoms. In vessels approaching this reef at night, it should be remembered that the flood-tide comes from the northward, setting strongly upon and over it, and afterwards south-westward, between it and Milne Bank, at the rate of 2½ knots. There is frequently a great rippling off the point, but the reef does not extend further than has been stated. The depth of 20 fathoms is as near as a large ship should approach when the land cannot be seen at night or in foggy weather. The anchorage

is not good to the northward of the point, the ground being either loose or rocky; but to the southward of it there is good riding with northerly winds as far westward as the East Lake Outlet, in a moderate depth of water, and over a bottom of red sand. The tides run at the rate of 2½ knots between the north end of Milne Bank and the point, but are not nearly so strong further to the westward. *East Point.*

Milne Bank, if we consider it to be bounded by the depth of 10 fathoms, is 5¾ miles long, N.N.E. and S.S.W., and 1¾ miles broad; the bottom being of sandstone thinly covered here and there with red sand. The soundings are irregular, between 6 and 9 fathoms, over the northern part of the bank; but towards the southern end, and close to the outer edge, there is a shallower part, 1½ miles in length, on which there are less than 5 fathoms; and it is here that the least water is found, namely, 4½ fathoms at low water, in spring tides. This shallowest part of the bank lies between S. by E. and South from the East Point, and is distant from it 4¼ to 5¾ miles. Souris Head and Dean Point in one, bearing W. by N., pass over its north extreme in 5 fathoms; and Swanton and Chepstow Points, bearing W.N.W. ½ W., just clear it to the southward in the same depth, but those points are so distant that fine weather, and a person very well acquainted with the coast, would be required to distinguish them. The extreme south end of the bank, in 10 fathoms, bears from the East Point south 6¼ miles; and the north extreme E.S.E. 2 miles. Between the northern part of the bank and the East Point there are from 10 to 11½ fathoms, red sand bottom, the deepest water being close to the bank. The eastern or outer edge of the bank is very steep, there being from 12 to 15 fathoms close to it, and there is very frequently a great rippling along it, caused by the abrupt opposition which it presents to the flood tide from the north-east. The sea is very heavy here, and also off the point, in strong N.E. gales. *Milne Bank.*

The North Coast of Prince Edward Island.

148. The great bay formed by the northern coast of Prince Edward Island, and the difficulty of beating a ship out of it in heavy and long-continued N.E. gales has been already mentioned. (138.) That difficulty seems to be caused by an acceleration in the rate of the current so frequently found running past Cape *Currents.*

Currents. Gaspé, Bonaventure Island, and the Miscou Banks, and which doubtless continues further south; or it may arise from an extension of that general set to the southward so often experienced by vessels crossing from the Bird Islands towards Anticosti or Cape Rozier (13), and which has been observed to be increased by strong N.E. winds; as might have been inferred from the great rise of water which they cause in all the southern ports of the Gulf.

Tidal Streams and Tides. The set of the tidal streams may also at times be very unfavourable to a vessel under the supposed circumstances, for the stream of flood is known to set to the southward into the bay, in conformity with the progress of the reflux tide wave, from the North Point south eastward to St. Peters, whilst further eastward the tide that comes from the N.E., from between the Magdalens and Cape Breton, also sets towards the shore, especially near the East Point.

The reflux course of the tide wave on this coast, has been inferred from observations made during the surveys of all the harbours; from which it appears, that the time of high water on the full and change days, becomes later in succession, as we proceed south-eastward from the North Point to Cascumpeque, Malpeque, Grenville Bay, Rustico, Tracadie, and St. Peters. At St. Peters, the time of high water, full and change, namely, 8¼ hours, is rather later than at the East Point, and as there is also a considerable increase in the rise of the tide, there seems reason to conclude that the two tide waves meet somewhere about this harbour, the western being twelve hours older than the eastern wave.

Anchorages. With the exception of a few places off the bars of the harbours, the anchorage is, generally speaking, very bad all along the northern shore of the island; the bottom being of red sandstone, thinly covered occasionally with sand, gravel, and broken shells.

The harbours are all of the same character, having narrow entrances between sand-bars, with dangerous bars of sand at various distances from the shore. They are only fit for small vessels, with the exception of Richmond Bay and Cascumpeque, and even those could not be safely run for in bad weather, and with a heavy sea running, at which times the breakers on their bars extend quite across, leaving no visible channel. New vessels

are built in these harbours almost every year, the smaller for the Newfoundland trade; and besides the coasting schooners for produce, American fishing schooners frequently call at them for wood and water, or shelter on the approach of bad weather. *Tides.*

I shall endeavour to state briefly in the following remarks all that appears useful to the seaman along this coast, commencing from the North Point, which, with its dangerous reef, has been described in the last chapter (Art. 139).

149. From the North Point to Cape Kildare, 11 miles S. by W. ½ W., there is little requiring notice, excepting the River Tignish, 2 feet deep in its narrow sandy entrance at low water, and affording shelter to fishing boats; and where also there is a Roman Catholic church and settlement, principally of Acadians. About a mile to the northward of the entrance a rocky ledge runs off to the distance of 1½ miles, with no more than 3 fathoms at low water. *Tignish River.*

The shallow water extends to the same distance off Cape Kildare, which is a cliff of sandstone 30 feet high; and generally, it must be borne in mind, that there are rocky and irregular soundings, between 3 and 5 fathoms, all along this part of the coast, frequently extending nearly 2 miles off shore.

Cascumpeque Harbour, sometimes called Holland Harbour, is distant 5 miles S.W. ½ W. from Cape Kildare, and at the bottom of the bay, where the land begins to trend to the eastward. It will be known also by the very remarkable high sand-hills, 3½ miles to the southward of its entrance; these are the remains of a range of sand-hills formerly known as the Seven Sisters, and are 50 feet high. There are no high sand-hills to the northward of the harbour. *Cascumpeque Harbour.*

The entrance is 180 fathoms wide, between two sand-bars resting upon the sandstone which forms the Inner Bar, over which there are 10 feet at low water. The Outer Bar, of sand, lies 1½ miles out from the entrance, and has the same depth, namely, 10 feet at low water, in a very narrow channel indicated by a White Beacon (on the south extreme of the northern sand-bar), in one with a white mark on a log hut, bearing W. by N.

The channel, from the one bar to the other, and between sand, covered by only a few feet of water, is 100 fathoms wide, and affords tolerable anchorage in from 2½ to 3½ fathoms sand bottom; the best berth being just outside the entrance, where the sands on

Cascumpeque Harbour.

each side dry at low water. It was here that vessels used to lie to complete their cargoes, after loading in the harbour to the draught that could pass out over the inner bar; there being at that time much more water on the outer bar; 18 feet, it is said, at high water. The diminution of depth has taken place within the memory of persons now living, and is attributed to the opening of a second entrance into the bay; the breach in the sand-bar, which was at first effected by the sea during a heavy N.E. gale, having been increasing ever since. This newer entrance into the bay, which has, at present, 5 feet over its bar, is about 2 miles to the southward of the harbour, from its nearness to the high sand-hills, and there being no beacon, will prevent its being mistaken.

Tides.

It is high water at the beacon on the full and change days at 5 h. 40 m. after the moon's transit; and the rise in ordinary spring tides is 3 feet, and in the neap tides 2 feet; but this is not regular, and therefore 12 feet over the bar at high water is all that can be safely reckoned upon on any particular day; unless in strong easterly winds, which cause a rise of a foot or more in all the harbours of this coast.

It must also be observed, that the rise given is always that of the best tide in the 24 hours; and that the morning spring-tides are the highest during the summer months. It frequently happens at or near the springs, that the evening tides rise only a few inches, and sometimes they entirely disappear, causing single day tides for a short time, as at Richibucto and Shediac, (Arts. 125 and 127).

The morning spring-tides are also the earliest during the summer months, as, for instance, at Cascumpeque Beacon at the full and change, in July, when the morning high water occurred at 4 h. 22 m., and the evening tide at 6 h. 58 m. after the moon's transit; the mean being 5 h. 40 m.; as given above and in all other similar cases.

At or near the neaps, the two tides of the same day become nearly equal in time and rise for a short time. There is reason to believe, that the diurnal inequality of the tides ceases for a time soon after the equinox, and that it is reversed in winter, but the ice has hitherto prevented observations during that season. These remarks apply to all the harbours of this island, and of the neighbouring provinces: their importance to vessels seeking

refuge and taking the dangerous bars in bad weather will be evident. The rate of the tidal streams in the entrance of Cascumpeque Harbour is in general 1½ knots, and it seldom if ever exceeds 2 knots. *Tides.*

A pilot would be indispensable to a stranger visiting this place for the first time. I shall therefore only observe, that the white mark on the house must not be opened in the least to the northward of the beacon, since those objects in one lead in close along the southern edge of the northern sand. In strong easterly gales the bar is covered with a continuous line of heavy breakers.

There is good anchorage off it in fine weather in 5 or 6 fathoms sand bottom. Within the entrance, the harbour has plenty of water, and a clear channel, which, after running in 1 mile to the westward, turns to the southward within Savage Island, and between it and Hill's Point, where there is a wharf at which vessels generally load.

Cascumpeque Bay is of great extent, and broken into inlets or rivers which penetrate the country in a variety of directions, and to the distance of many miles. I must refer to the Admiralty Chart for these, and also for the boat communications within the sand-bars, when the tide is in, northwards to Kildare River, and southwards to Richmond Harbour. The principal entrance of this Harbour bears S.S.E. ½ E., 20 miles from Cascumpeque, the intervening shore being formed exclusively of sand-bars and sand-beaches from which the shallow water extends two-thirds of a mile to 3 fathoms, and 1 mile to 5 fathoms. In the above-named distance there are two openings through the sand-bars, Cavendish and Conway Inlets, which afford shelter to boats, and are distant 7 miles and 11 miles respectively, from Cascumpeque Beacon. *Cascumpeque Bay.*

Boats can enter Richmond Bay by the last named inlet, passing to the westward of Lennox Island at high water.

150. Richmond Bay is of great extent, running in 10 miles to the S.W., and crossing the island to within 2½ miles of the waters of Bedeque Harbour. It contains 7 islands, and a great number of creeks or rivers, some of which are navigable for vessels of considerable burthen, and all of them by small craft and boats. Grand River, which is the principal inlet, can be ascended in boats to the bridge, a distance of 7 or 8 miles. *Richmond Bay.* *Grand River.*

There are fine settlements at Grand River, and also at Port Hill, in the N.W. part of the bay within Lennox Island, and

Grand River. where several vessels load every year. There is an Indian Church and settlement on Lennox Island, but it cannot be seen from the sea. There are also large settlements at the head of the bay, where the churches of St. Eleanors and Miscouche are seen on the ridge that separates its waters from those of the Strait of Northumberland.

Malpeque, which has given its name to the harbour, is one of the oldest settlements on the island, and, with its Presbyterian Church, stands on the neck of land between Darnley Inlet and March Water, 2½ miles S. from the entrance of the bay. A competent pilot, or a chart on a large scale, could alone enable any one to navigate a ship through the various channels and inlets of this bay: I shall therefore confine my remarks and directions to the principal harbour in its entrance.

Malpeque Harbour. MALPEQUE HARBOUR is very superior to any other on the northern coast of the island, having 16 feet over its bar at low water, and from 18 to 19 at high water in ordinary spring tides, together with depth and space enough within for any description and number of vessels. The principal entrance is to the southward of Billhook or Fishery island, and between it and Royalty Sand, which dries out a long half-mile from Royalty Point.

The ground is good, in the usual anchorage, just within this entrance; the bar outside preventing any sea from coming in, and the Horse Shoe Shoals sheltering them from westerly winds down the bay. The other entrance, to the N.W. of Billhook *West Gully.* Island, is called the WEST GULLY, and is so narrow and intricate as to be only fit for boats, or very small craft, although it has a depth of 9 feet over its dangerous bar of sand, which is 1¼ miles out from the shore. There will be no probability of this being mistaken for the main entrance, even if the beacons and buoys were gone, if it be remembered that the Main or Ship channel is to the S.E. of all the sand-bars, including Billhook Island, and between them and the red sand-stone cliffs of Cape Aylesbury the S.E. point of the bay.

Malpeque Bar. THE BAR OF MALPEQUE runs out from Billhook or Fishery Island 2¼ miles to E. by S., and then turns to the southward so as to join the shore to the eastward of Cape Aylesbury. It is of sand thinly and irregularly spread upon sandstone; the rock being in many places quite bare. It is exceedingly dangerous in bad weather, when all signs of a channel are obliterated by heavy

breakers. The northern part of the bar, to the distance of 1½ mile out to the eastward from Billhook Island, is very shallow, there being in some places only 4 feet at low water; but the extent of this shallow part is well shown by a good cross mark, namely, the Scotch Church, Malpeque, and Darnley Point in one, bearing S.W. by S. To the eastward of this cross mark, and to the northward of the line of the beacons, there is more than 12 feet at low water. *Malpeque Bar.*

The narrowest part of the Ship channel is just within, or to the westward of the above named cross mark, and is one cable wide, and 4 fathoms deep. The Inner Bar, of sandstone and with 19 feet at low water, is a quarter of a mile further in, and has in general a buoy upon it. Two white beacons, on the S.E. end of Billhook Island, kept in one, bearing W.N.W. ¼ W., will lead through the narrows of the ship channel and over the Inner Bar; but not over the Outer Bar in more than 13 feet at low water. To enable vessels to cross the outer bar in the deepest water, namely, 16 feet at low water in ordinary spring tides, the Outer Buoy is moored in 3½ fathoms, and at the distance of one cable to the northward of the line of the beacons: the intention being, that a vessel by running from the outer to the inner buoy should carry the deepest water, but I do not think that more than 15 feet could be insured in that way, or without the assistance of a third buoy between the other two; and therefore a stranger without an experienced pilot should not reckon upon more than that depth. As the buoys are at present so insecurely moored as to be liable to drift from their positions, the directions I shall give will be irrespective of them, as follows:— *Ship Channel.*

Being off the bar, in 5 fathoms, bring the beacons in one, bearing W.N.W. ¼ W.; then sheer to the northward of their line to the estimated distance of one or two cables, and the westmost beacon will appear a little to the northward of the other. Steer now so as to make a direct course towards the beacons, keeping the westmost beacon open a little to the northward, and the vessel will pass the bar in not less than 15 feet, and probably in 16 feet at low water in ordinary spring tides, or a corresponding depth at other times of the tide. *Directions.*

The water will deepen immediately within the bar to 18 feet or more, and as soon as it does so sheer at once to the southward, and bring the beacons exactly in one; taking care that this be

Directions. done before the Scotch Church, Malpeque, opens out to the westward of Darnley Point; for if not the vessel will be on shore on the shallow part of the bar on the north side of the channel. Keep now the beacons in one, running towards them, and they will lead through the Narrows, and over the Inner Bar in 19 feet at low water; after which they may either still be kept in one, or the westmost one a little open to the *southward* of the other, until the vessel is half a mile within the inner bar, or within three-quarters of a mile of the beacons; when the course must be changed to west, and the sandy south point of Billhook Island must be passed at the distance of one cable steering that course into the harbour.* The vessel should anchor with the beacons bearing between E. by N., and E.N.E., and distant from ½ to ¾ of a mile, but not farther for fear of the Horse Shoe Sands, which commence at the distance of one mile from the beacons. There is less sea further to the S.W., within or to the westward of Royalty Sand, but a stranger will have less difficulty and risk in taking up the berth first recommended. The channel passes to the Southward of the Horse Shoe Sands and between them and Grover Island, but, the principal object aimed at in these directions being to enable a vessel to run into a place of safety, I shall refer to the chart for the navigation within the bay. Vessels may anchor outside the bar, in from 5 to 7 fathoms, sand bottom, to wait for a pilot; and in the event of the wind or tide failing, the anchorage is considered tolerably safe between the inner bar and the entrance, and probably is so with any wind that would prevent a vessel from running in, but the holding ground is not good there, and should only be trusted in fine summer weather. Within the harbour the bottom is of sand and clay, and a vessel may choose any depth from 3 to 10 fathoms, the greatest depth being close off the point of Royalty Sand. It is high water, in the harbour, on the full and change days, at 6 hours after the moon's transit; the rise being 3 feet in spring, and 2 feet in neap tides: but the rise is so irre-

Tides.

* Grover Island, being distant 5 miles from the bar, can with difficulty be distinguished from Bunbury Island behind it; but those who can be certain of not mistaking the one island for the other may proceed as follows:—Being off the bar, in 5 fathoms, open the north point of Grover Island a little (not more than 2 degrees), to the northward of Royalty Point, bearing W. by S.; and keep it so running towards it, until the beacons come in one, when change course towards the latter, keeping them in one, and they will lead in through the narrows and over the inner bar, when the vessel must proceed as already directed.

gular, that it would not be safe to count upon a rise of more than 2 feet on any particular day. N.E. winds cause high tides, westerly winds produce the contrary effect. The morning tides are the highest during the summer months (see Art. 149). The rate of the tides is strongest in the entrance, and off the point of Royalty Sand, running in spring tides 2½ knots. In the Ship channel, from the entrance to the Bar, the rate is 1½ to 2 knots. Within the bay the tides are in general much weaker, seldom amounting to 1 knot. *Tides.*

Abundance of fresh provisions may be obtained at Malpeque, but water can only be obtained from wells, so that it requires considerable time and labour to supply a ship for a voyage.

The coast between Richmond Bay and Cape Tryon is nearly straight, and free from detached dangers; but the shallow water runs out a considerable distance, and a large ship should not approach nearer than the depth of 7 fathoms.

Cape Tryon, distant 7 miles, S.E. ½ E., from Cape Aylesbury, is a remarkable cliff of red sandstone, 110 feet high. *Cape Tryon.*

151. Grenville Harbour, 1½ miles, S.S.E., from Cape Tryon, has its entrance at the north-western extremity of a long range of sandhills, the highest of which is 55 feet above high water mark. The entrance of this harbour is one-third of a mile wide, and 3 fathoms deep, but it is nevertheless only fit for small vessels, in consequence of its dangerous and shifting bar of sand, over which, at the time of our survey, only 5 feet at low water could be carried in a very narrow channel indicated by two buoys. The bar extends out to the distance of two-thirds of a mile from the entrance, and the shallow water 1 mile, at which distance there are 5 fathoms over sandy bottom. *Grenville Harbour.*

It is high water here on the full and change days at 6 h. 10 m. by the mean of the morning and evening tides, the morning tide being the earliest and highest during the summer months, (Art. 149.) Ordinary spring tides rise only 3½ feet, and neap tides only 2 feet, unless increased by easterly winds. Within the entrance the harbour is 3 miles wide, branching into two principal and many smaller creeks, with small brooks at their heads. The two principal of these, namely Stanley and Mill Rivers, are navigable for small craft and boats to the head of the tide, a distance of 6 or 7 miles. There are increasing settlements and a fertile country around this harbour, the principal settlement being New London, *Tides.*

Tides. where the English and Scotch churches are situated on the western shore 1¼ miles within the entrance; the former being distinguished by its steeple.

Cape Turner. CAPE TURNER is the highest cliff on the island, being of red sandstone and conglomerate, 120 feet high. It is distant 8 miles, S.E. ¼ E. from Cape Tryon, the harbour last described lying between.

Great Rustico Harbour. GREAT RUSTICO HARBOUR has two narrow sandy entrances, on either side of M'Auslin Island, and which are distant 3 and 5 miles respectively to the S.E. of Cape Turner. Although vessels of two or three hundred tons are occasionally built here, and floated light over the bars in fine weather, yet it is a place only fit for small schooners; for its shifting bars of sand are exceedingly dangerous, having a varying depth of from 4 to 6 feet, and extending out ¼ of a mile from the shore; at which distance there are 3 fathoms at low water.

The line of deepest water over each of these bars is pointed out by two buoys, the positions of which are changed as occasion requires.

Tides. It is high water here on the full and change days at 6 h. 40 m.; the rise in ordinary spring tides being 3½ feet, and in neap tides 2 feet, (Art. 149). The rate of the tides in the entrances is 2 knots. Hunter and Whitley Rivers, navigable for boats to the distance of 5 miles inland, with Winter Creek between them, run into this shallow place, which extends 5 miles along th coast within the sand-bars of M'Auslin Island and Brackley Point, which latter separates it from Little Rustico.

There are extensive settlements here of Acadians and others. The English Episcopal and Roman Catholic churches are on the western side of Winter Creek, and will be recognized by their steeples.

There is also a smaller Presbyterian place of worship, at the settlement of New Glasgow, on the western side of Hunter River, but it cannot be distinguished from the sea. These buildings are all of wood.

Little Rustico Harbour. LITTLE RUSTICO HARBOUR has its narrow sandy entrance on the western side of Stanhope Point, with a depth of only 2 feet over its shifting bar: it is therefore only fit for boats, or very small vessels; the rise of tide being the same as at Great Rustico. This shallow place extends for several miles within the sand-bars,

and is divided by Black Point into Petersham and Stanhope Coves, which have small brooks at their heads, and are navigable for boats to the distance of 3 miles inland. *Little Rustico Harbour.*

Stanhope Point, on which there is a sandhill 30 feet high, half a mile to the eastward of the entrance of Little Rustico, and 9 miles S.E. from Cape Turner, has a dangerous reef running out from it three-quarters of a mile to the depth of 3 fathoms, and 1 mile to 5 fathoms. On some parts of this reef there is only one foot of water, at the distance of half a mile from the shore. Between Stanhope Point and Cape Turner the coast forms a curve or bay, in which are situated the entrances of the Rusticos already described; and where the 3 fathoms edge of the shallow water is seldom less than three-quarters of a mile off shore. Further out the holding ground is bad, being of red sandstone, with an occasional thin covering of sand. *Stanhope Point.*

152. Tracadie Harbour, or Bedford Bay, is distant 4 miles from Stanhope Point; and 13 miles, S.E. by E., from Cape Turner. Its entrance is at the western extremity of a remarkable range of sandhills 50 or 60 feet high. The bar of sand, which shifts occasionally in heavy gales, extends out to the distance of three-quarters of a mile from the entrance, and has a varying depth of from 5 to 9 feet over it at low water, in a channel only 40 fathoms wide at the time of our survey. The place therefore is only fit for small vessels, and even they require the assistance of buoys, and favourable weather to take the bar with safety. The harbour is 3 miles wide within the sand-bar, and 2½ fathoms deep; it sends off a branch to the westward called Winter Cove, and runs in 4 or 5 miles to the southward, approaching at its head to within 1½ miles of the Hillsborough River, to which there is a good road across. *Tracadie Harbour.*

It is high water at the entrance, on the full and change days, at 7 hours, and the rise varies from 4 to 2 feet, according as it may be spring or neap tides, and also according to the direction of the winds (Art. 149). The rate of the tides in the entrance is about 2 knots. *Tides.*

Savage Harbour, which is 9 miles to the eastward of Tracadie, has only 2 feet at low water over its bar, and is therefore only fit for boats or very small craft. Just to the westward of its entrance there is some comparatively shallow water, 4½ fathoms over rocky bottom, at the distance of a long mile from the shore. The dis- *Savage Harbour.*

Savage Harbour. Tides.

tance across from the head of this harbour (which runs inland 3 miles), to the head of the Hillsborough River is less than a mile, and there is a road across. It is high water, full and change, at about 8 h. 30 m.; and the rise is from 4 to 2 feet, according as it may be spring or neap tides.

St. Peters Harbour.

St. Peters Harbour, generally called St. Peters Bay, is 3 miles further to the eastward, and of great extent; running in 7 miles to S.E. by E., with a depth in some parts of 3 fathoms; nevertheless it forms a harbour only for small vessels, there being only 5 feet at low water over its bar of sand; the outer edge of which, in 3 fathoms, is distant two-thirds of a mile from the shore. The channel through the bar, in which this depth of 5 feet at low water could be carried at the time of our survey, is indicated by two buoys: it is liable to shift in heavy gales, and there is a sharp turn to the eastward immediately within the entrance; so that altogether it is a very dangerous place for a stranger to attempt, or indeed for any one excepting in fine weather. It is high water, full and change, at 8 h. 30 m.; and the rise is 4 feet in ordinary spring tides, and 2 feet in neap tides (Art. 149). The rate of the tides in the narrow entrance is nearly 3 knots.

Tides.

Morrell River.

The Morrell River enters this harbour on the S.W. side 3 miles in from the entrance, and is navigable for boats to the same distance inland, where the piles that steady the floating bridge prevent further ascent. There are several smaller streams on the same side of the harbour, and at its head St. Peters River, which, like the rest, becomes a mere brook at the head of the tide.

The shores of the harbour are well settled, and there is a Roman Catholic Church on the eastern shore near its head. St. Peters will be recognised by its magnificent range of sand-hills, which, near the entrance, attain the elevation of 70 feet above the sea, and continue for several miles to the eastward; after which there are no more high sand-hills till we arrive at Surveyor's Inlet, within 4 miles of the East Point.

From St. Peters to the East Point, a distance of 33 miles E.S.E., the coast is unbroken, formed of red sand stone cliffs, with occasional patches of sandy beach at the mouths of small streams, where boats can land only in fine weather or off shore winds. Surveyor's Inlet will not now admit a boat, being closed with sand.

The shallow water does not extend beyond half a mile anywhere

off this division of the coast, and there are in general 10 fathoms of water within 1 mile of the shore; the bottom being of sandstone, and the anchorage bad in consequence. *Morrell River.*

Northumberland Strait.

153. A full description of Prince Edward Island, and of the opposite coasts of New Brunswick and Nova Scotia, having been given in this and the three preceding chapters, in illustration of the Admiralty Charts, it now only remains to offer a few general remarks respecting the Strait of Northumberland, which appears to have been hitherto avoided by large ships as much from a want of that precise knowledge which a good chart and directions are calculated to convey, as from any supposed amount of danger or difficulty in its navigation. There are, however, few places in which such precision of knowledge is more requisite than in this Strait, which presents a confined navigation 160 miles in length; and which, at Cape Tormentine, the narrowest part, is only 7 miles wide from shore to shore; and only 5½ miles, if we reckon only the navigable breadth between the shoals.

The description of the dangers and of the soundings have been made very full in consequence; and the times of high water, and the rise of the tides in the various harbours, together with the strength of the tidal streams in their entrances, have also been given; but the tides of the Strait are so peculiar that it will be both interesting and useful to add a general view of the course of the tide-waves, and of the strength and direction of the streams which they occasion.

To this will be added briefly the mode of proceeding recommended to be adopted in a vessel running through the Strait in a dark night or in thick weather when the soundings alone can safely guide her.

Tidal Streams.

For the purpose above stated, it will be convenient to divide the Strait at Cape Tormentine, into two nearly equal portions, distinguished by the different set of their tidal streams, and by different tide-waves, which, advancing from opposite directions, meet in the central part of the Strait. The course of these waves appears to be as follows. The principal tide-wave, after entering the Gulf between Cape Breton and Newfoundland, sends off, laterally, waves to the S.W., on either side of the Magdalen Islands. The first of these, which I shall call the eastern wave,

Tidal Streams. coming from between those islands and the western shore of Cape Breton Island, arrives at the eastern entrance of the Strait soon after 8 o'clock, and proceeds to the westward, making high water later in succession from east to west as far as Pictou, which it reaches at 10 hours. At the same nominal hour, but twelve hours later, the other or western wave arrives at Cape Tormentine, having been retarded by the long detour which it has taken to the northward and westward of the Magdalens, and by the great extent of comparatively shallow water which it has passed over in its subsequent progress to the S.W. This wave makes high water later in succession at places along the eastern coast of New Brunswick, as we proceed to the southward; and, after entering the Strait, from N.W. to S.E., contrary to the course of the other or eastern wave.

Thus, it is high water on the full and change days at Miscou at about 2½ hours; at Point Escuminac and the North Point of Prince Edward Island forming the western entrance of the Strait, soon after 4 hours; at the west point of Prince Edward Island at 6 hours; at Shediac 8 hours; and at Cape Tormentine 10 hours.

When, therefore, the eastern wave arrives between Pictou and the Wood Islands, the western part of the preceding tide-wave arrives between Cape Tormentine and Cape Traverse. They then meet and combine to make high water at the same hour, namely, 10 hours, or a little later in the harbours, all over the central portion of the Strait from Pictou to Cape Tormentine; causing also an amount of rise of the tides everywhere more than double, and in some of the harbours nearly three times as great as that which occurs at either entrance of the Strait.

The direction of the tidal streams corresponds generally, and in fine weather, with the progress of the tide-wave, but is disturbed occasionally by strong winds. The eastern flood stream enters the Strait from the N.E., running at the rate of 2½ knots round the East Point of Prince Edward Island, but is much weaker in the offing and over towards the southern shore. It runs round Cape Bear, and with an increasing rate along the land to the westward; is strongest in the deep water near the land, and runs at its extreme rate of 3 knots close past the Indian Rocks and Rifleman Reef.

Losing strength as it proceeds further to the N.W., it is quite

a weak stream when it meets the other flood stream off the Tryon Shoals. *Tidal Streams.*

This eastern flood stream is not so strong along the southern or Nova Scotian shore, unless it be in Caribou Channel for a short space near Caribou Reef; and it is weak, not generally exceeding half a knot, in the middle of the Strait.

The other or western flood stream comes from the northward, along the west coast of Prince Edward Island, sweeping round the West Point, and running strongest in the deep water near the West Reef, where its rate is 2½ knots. Over towards the New Brunswick shore its rate seldom exceeds 1½ knots, and this is its average rate as it pursues its course to the S.E., until we arrive near Cape Tormentine, where the strongest part of the stream runs near the Jourimain Shoals, and thence to the southward round and over the dangerous Tormentine Reefs with a great ripple, and at the rate of 3 knots.

After passing these reefs, part of it curves round to the S.W. with decreasing strength, and unites with the other flood stream in the Bay Verte, whilst the remainder is lost in the central part of the Strait. The ebb stream, generally speaking, pursues a contrary course to the flood, and at nearly the same rates.

From this account of the tidal streams it appears, that a fast sailing vessel, under favourable circumstances, might enter the Strait with the flood, and, arriving at Cape Tormentine soon after high water, might there take the ebb, and thus have the stream with her, with but slight interruption, from one end of the Strait to the other. Or, a vessel beating with the flood, might so time her arrival at the same point, as to be able to continue her voyage in the same direction with the ebb.

The tidal streams were observed in general to change their directions soon after it was high water or low water by the shore; but not unfrequently there were exceptions to this which it would be difficult to account for with certainty. Strong winds in the Gulf greatly influence the strength and direction of the streams in the Strait, as well as the height to which the tides rise: moreover, as the two tide-waves that meet in the central parts of the Strait are twelve hours different in age, so they are in consequence of unequal heights, owing to the diurnal irregularity; each of them being alternately and in turn the highest, and probably occasioning the stronger stream.

Tidal Streams. But, it would require a long series of simultaneous observations at different points, and continued through the different seasons of the year, to reduce to order or to explain satisfactorily the seeming irregularities thus produced. Nevertheless, enough remains, of general occurrence during the summer months, which it is highly useful for the seaman to know, and which has been stated in consequence.

Directions. 154. Vessels bound to Miramichi, and the ports in the Strait to the westward of Cape Tormentine, after entering the Gulf on either side of the Island of St. Paul, usually pass to the southward of the Magdalens, and round the North Point of Prince Edward Island. The reef of this last-named point is exceedingly dangerous (Art. 139), and the lead should be kept constantly going when approaching it at night or in foggy weather; bearing in mind the probability of having been previously set to the southward in crossing from the Magdalens, especially if the wind has been from the northward.

Under the same circumstances, after rounding the North Point, the course should be shaped well to the westward, so as to ensure clearing the West Reef (Art. 139), which should be passed by the lead, running along the edge of the bank off the New Brunswick shore. Proceeding south-eastward, after having passed the West Reef, the lead will afford sufficient guidance along either shore, reference being had to the soundings in the Admiralty Chart, until we arrive near the narrow part of the Strait at Cape Tormentine.

There, if the vessel be bound further to the eastward, the shore of Prince Edward Island should be preferred, the soundings on that side being quite sufficient to guide the vessel past Carleton Head, Cape Traverse, and more particularly the Tryon Shoals, if the irregular tides off the latter, and the frequent set of the ebb stream towards them be remembered (Art. 142). The tides, however, in this narrow part of the Strait, are not very strong along the Prince Edward Island shore, off which the anchorage is good, in the event of the wind failing; whilst on the opposite side there is deep water, and very strong tides close to the Jourimain and Tormentine Reefs (Art. 128).

If the wind be adverse, or scant from the southward, with the ebb tide running, a stranger had better not attempt this narrow passage at night, or when the land cannot be seen. Under such circumstances, it is recommended to anchor to the westward of

Cape Tormentine, till daylight or a change of tide renders it less hazardous to proceed. Vessels bound to ports in the eastern division of the Strait, enter the Gulf either through the Gut of Canso or by the Island of St. Paul. In the first case, the bearing of the Light at the northern entrance of the Gut will guide them up to Cape George, from which, if bound to Pictou, there will be no difficulty in running along the land to the westward, if due attention be paid to the soundings in the Chart, and afterwards to the bearing of Pictou Light. If the weather be thick, or the light not seen, beware of the reef off the east end of Pictou Island, which should not then be approached nearer than the depth of 10 fathoms especially if the flood-tide be running. For the dangers around that island, see Art. 136; and for those on the opposite shore of Nova Scotia, Arts. 135, 136, and 137. *Directions.*

Vessels approaching from St. Pauls, and entering the Strait at the East Point of Prince Edward Island, should not approach the latter nearer than 20 fathoms in dark nights or thick weather.

Cape Bear and its reef should not be rounded in less than 15 fathoms, under the same circumstances; and then, if bound anywhere to the westward of Pictou, the vessel should be kept more over towards Pictou Island and the southern shore, where the soundings will guide her, till the Indian Rocks and Rifleman Reef (Art. 144) are passed. The Light on Point Prim (Art. 143), will greatly assist in passing the last-named danger, after which the lead will again afford sufficient guidance along the Prince Edward Island shore, past the Tryon Shoals, and through the Strait to the north-westward.

On the opposite, or Nova Scotian shore westward of Pictou, the principal dangers to be avoided are the Middle Shoals (Art. 136), between Pictou Island and Caribou; Amet Island and Shoals; and Waugh Shoal (Art. 134). The approach to all these is sufficiently indicated by the soundings, and therefore a constant use of the lead, and a careful reference to the Admiralty Chart, will enable the intelligent seaman to pass them at all times in safety; and also to conduct his vessel to any of the harbours of this coast, where pilots will readily be obtained: Arts. 130 to 134, inclusive.

From the account which has been given of the tides in this Strait, it will be perceived, that they are very different from anything that can be gathered from preceding publications; and

Directions. the Admiralty Charts will show that the soundings are no less so, for they vary greatly, both in the nature of the bottom, and the depth of water; thus affording much more assistance to vessels than they would have done, if they had been of the more uniform character which has been erroneously attributed to them.

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PART THE FOURTH.

THE SOUTH-EASTERN PART OF THE GULF, AND BRETON ISLAND.

CHAPTER XIX.

GEORGE BAY TO CAPE NORTH.

155. George Bay; Cape George; Mac Isaac Rock; Antigonish Harbour.—156. Monk Head; Pomquet Harbour; Pomquet Island and Roadstead; Bowman and Pomquet Banks.—157. Tracadie Harbour; Little Tracadie; Cape Jack; Jack Shoal; Havre Bouche; the Lighthouse at North entrance, Gut of Canseau.—158. Breton Island; Judique Shoal and Bank.—159. Port Hood, with directions.—160. The West coast of Breton Island, general description, and remarks respecting the set of the current and tides.—161. Mabou River and Highland; Sea-Wolf Island; Margaree River.—162. Chetican Island, roadsteads, and harbour; the Caveau Shoals and Jerome Ledge; Grandance.—163. Cape St. Lawrence; St. Lawrence Bay; Cape North.

155. GEORGE BAY* is of great extent, being 13½ miles wide at entrance, between Cape George and Henry Island, and 20 miles deep, from the same Cape to the Gut of Canseau. It is traversed by all the numerous vessels that pass in or out of the Gulf by its southern entrance, and hence its navigation assumes a more than usual degree of nautical importance. I shall resume the description of the Nova Scotia Coast, which forms its western and southern shores, from the point reached at the conclusion of the 16th chapter of these directions. *George Bay.*

CAPE GEORGE, the N.W. point of the bay, is a bold and precipitous headland, composed principally of slate, conglomerate, and trap rocks, attaining the elevation of 600 feet above the sea. The shallow water does not extend off it beyond a quarter of a mile, but as there is a depth of 20 fathoms at double that distance, the lead affords but little warning, and it should therefore be *Cape George.*

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* See Chart.

Cape George. approached with caution in dark nights or thick weather. Off Ballantyne Cove, on the eastern side of the Cape, there is anchorage in westerly winds, but the ground is not very good.

Mac Isaac Rock. Mac Isaac Rock, with 9 feet least water, is the centre of a small detached shoal, distant nearly 300 fathoms from the shore, between Mac Isaac Point and a remarkable patch of white gypsum cliff. This rock, which is the only danger on the west side of the bay, bears from the gypsum patch E.N.E. ½ E. two-thirds of a mile: it is distant 2½ miles to the northward of the entrance of Antigonish, and is shown occasionally by heavy breakers.

Antigonish Harbour. Antigonish Harbour, 11 miles S.S.W. from Cape George, and midway between Mac Isaac Point and Monk Head, is 90 fathoms wide at entrance, between low points of sand, from which a dangerous bar extends to the distance of half a mile. Two Beacons, on the northern point of entrance, kept in one, and bearing W. by N. Northerly, led over this bar, at the time of our survey, in 6 feet at low water; but both the depth and direction of the very narrow channel are said to change occasionally. The anchorage off the bar is not very good, and would be quite unsafe in a gale of wind from the N.E. It is high water in the entrance, on the full and change days, at about 9 hours; the rise being 4 feet in ordinary spring tides, and 2 feet in neap tides. Northerly winds cause high tides, and southerly winds the contrary. The rate of the tides in the entrance seldom exceeds 2 knots, unless it may be in spring, after the melting of the winter snow.

Tides.

The harbour is of great extent, running in 6 or 7 miles to the S.W.; the channel, between flats of mud and weeds, being in some places 5 or 6 fathoms deep. The scenery is exceedingly beautiful, the shores being broken into numerous coves, points, and islets, while a range of hills rises behind the western shore to the height of 760 feet above the sea. There are flourishing farms on either side, and the village of Antigonish, containing about 600 inhabitants, and an English Episcopal and a Roman Catholic Church, stands at the head of the western arm, distant 6½ miles from the entrance. Gypsum abounds here, forming, with lumber, and the produce of an increasing agriculture, the cargoes of the schooners that frequent the harbour.

156. Monk Head is a cliff of gypsum 45 feet high, 2¾ miles S.E. from the entrance of Antigonish Harbour. It has a rocky bank, with 3 fathoms least water, extending off it three-quarters of a mile to the eastward; and there are no more than 4½ fathoms at double that distance out from the shore. *Monk Head.*

Pomquet Harbour has its narrow entrance, at the eastern extremity of a range of low sandhills and sandbeach, 2½ miles S.S.E. from Monk Head, and in the bay between it and Pomquet Point. It is an extensive place, branching into two principal and many smaller inlets, coves, and islets. It is navigable for small craft and boats nearly 3 miles in from the sea, but it is of no use to shipping, having usually only a depth of 2 feet at low water over its shifting bar of sand. The principal settlements and the R. C. Church are on the western shore of the N.W. arm; and the Indians have a chapel and a reservation of land on the eastern and larger branch, at the head of which is Pomquet River, a small stream. *Pomquet Harbour.*

Pomquet Island, which bears S. ½ E. distant 14¼ miles from Cape George, is of red-sandstone, low, wooded, about half a mile long, and is joined by a reef to Pomquet Point, from which it is distant 175 fathoms. The reef dries out from the point more than half way over towards the island, and leaves a passage only 3 or 4 feet deep at low water. Shallow water runs out from the island nearly 400 fathoms to the E.N.E., and a reef, with a large rock near the end of it, dries out from its eastern shore to the distance of 150 fathoms. The island and its reefs shelter Pomquet Road from all points excepting between N.E. by N. and East. This roadstead, which is considered safe during the summer months, but where the riding must be very heavy in N.E. gales, is in the bay between Pomquet Point and Little River; which last admits boats only at high water, and with its English Church and settlement will be seen bearing S. by W. at the distance of a long mile from the island. Vessels may anchor in any depth from 3 to 6 fathoms over sandy bottom, but the best sheltered berth is in 4 fathoms at low water, with the South point of the island bearing N. by E. ½ E. distant half a mile. To run for this anchorage from the northward, pass the eastern shore of the island at the distance of half a mile, or in not less than 8 fathoms, until Pomquet Point comes in sight to *Pomquet Island.*

Pomquet Island.

Bowman Bank.

the southward of the island, when haul to the westward into the bay. Approaching from the eastward, the Bowman Bank must be avoided in a large vessel, either by the lead, or by not bringing the north point of the island to bear to the westward of W.S.W. until the north point of the bank is passed. The bank is of great extent, running off fully 2 miles to the northward from Quarry Point and Bowman Head; and has rocky patches on it, with 13, 16, and 19 feet at low water, at various distances, from three-quarters to 1½ miles off shore.

Pomquet Banks.

The Pomquet Banks, discovered by Captain Bayfield, lie off Pomquet Island to the N.N.E., distant from 3 to 6 miles. The soundings on them are rocky and irregular, the least water (6 fathoms) having been found on the outer and smaller of the two banks, when the church at Little River was shut in behind the east side of the island, bearing S. by W. ½ W. 5½ miles.

Tracadie Harbour.

157. Tracadie Harbour,* 3¾ miles E.S.E. from Pomquet Island, has its narrow entrance about half a mile to the eastward of Bowman Head. It is extensive, and 14 feet deep in some parts within; with many coves, islets, and small streams, the principal of which, called Tracadie River, is at the head of the eastern arm, 2½ miles in from the sea. The depth over its dangerous bar of gravel and stones is only 2 feet at low water, in a narrow and crooked channel; it therefore admits only boats, or very small vessels at high water. The village of Tracadie and the Roman Catholic Church will be seen about a mile within the entrance. The church is large and can be seen from a great distance out at sea.

Little Tracadie.

Little Tracadie, a similar but much smaller harbour, with only 1 foot at low water over its bar, lies 2¾ miles further to the eastward. Its entrance is in the bay between Barrio Head and Blue Cape, the former being a cliff of red-sandstone 110 feet high; the latter remarkable from being of limestone, and sheltering the entrance from N.E. winds. The inhabitants of these small harbours, including Pomquet, are Acadians, of French extraction, who live principally by agriculture; fishing only to a limited extent during the herring and mackerel seasons.

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* See Plan.

CAPE JACK, a cliff of red-sandstone, 45 feet high, is the most prominent headland on this part of the coast, forming the extreme point all the way from Pomquet Island, from which it bears E. ¾ S. 7¾ miles. *Cape Jack.*

JACK SHOAL runs out from the cape N.E. by N. 1 mile to 3 fathoms, and 1½ miles to 5 fathoms. Between the distances of half and three-quarters of a mile off shore, there are two large patches of rock, that dry at half tide; leaving a passage for small craft, 11 or 12 feet deep, between them and the cape. This shoal has often proved dangerous to vessels in thick weather, when it should be approached with great caution, especially from the eastward; the soundings on that side being irregular and deep near the shoal, but nevertheless quite sufficient to ensure safety, if the lead be kept going, with reference to the Admiralty Chart. On the outer point of the shoal, in 3 fathoms, the Light-house at the north entrance of the Gut of Canseau bears S.E. ½ E. 3¼ miles; therefore a vessel will be clear of this danger if the light be not brought to bear to the eastward of S.E. ½ S. If the light cannot be seen, the shoal should not be approached nearer than the low-water depth of 10 fathoms. *Jack Shoal.*

HAVRE BOUCHE is a small but convenient harbour for schooners, lying between Cape Jack and the Lighthouse. It has 4 feet, at low water, in its narrow entrance between stony points, having no bar outside; and it is 13 or 14 feet deep within. There is a small stream at its head. The shores and neighbourhood are well cultivated, and the Roman Catholic Church will be seen near the shore, and a mile to the westward of the entrance, being half way towards Cape Jack. *Havre Bouche.*

It is high water, on the full and change days, at this, and the other three small harbours last described, at about 9½ hours, and the rise, unless increased by northerly winds, is from 4 to 2 feet, accordingly as it may be spring or neap tides. *Tides.*

THE LIGHTHOUSE at the north entrance of the Gut of Canseau is a conspicuous object, standing on the western or Nova-Scotia shore, 50 fathoms within the high-water mark. It is a square building of wood, painted white; standing on the bank so that the lantern is elevated about 110 feet above the sea. It exhibits a fixed light, which can be seen in favourable weather from all the northern parts of the bay, at the distance of 6 or 7 *Canseau Light.*

Canseau Light.

leagues. It was established in the year 1842, and has proved of the utmost benefit to the numerous vessels which pass through this great thoroughfare. Half a mile to the S.E. of the Lighthouse, and on the same side of the Gut, there is tolerable anchorage in all but northerly winds.

Vessels frequently stop there to wait tide.

BRETON ISLAND.

158. Crossing the northern entrance of the Gut of Canseau, from the Lighthouse to Breton Island at Heffernan Point, a distance of 1¼ miles, we continue our description northward along the western shore of the island. For the first 7 miles we meet with no detached dangers, nor does the shallow water anywhere extend to the distance of half a mile from the shore. The land is high, and rather barren looking, rising, at the distance of half a mile from the shore, to the summit of a ridge 850 feet above the sea, and which continues parallel to the coast-line for 5 or 6 miles. The only remarkable object in this interval is the Roman Catholic Church at Craignish, which will be seen bearing N.E. ½ E. and distant 2¾ miles from the Lighthouse. At Long Point, a low cliff of red-sandstone, the coast becomes dangerous of approach, and continues so to Emersion Head, a distance of 7 or 8 miles.

Judique Shoal.

JUDIQUE SHOAL, the greatest danger in the bay, is of rock, and about half a mile in length, if we reckon only the very shallow part, but there are patches with 2 and 3 fathoms, and much rocky ground both to the north and south of it, as will be seen in the Chart.

On the outer and N.W. point of the shoal, the Church at Port Hood is only just shut in behind Susan Point, bearing N.N.E.: Long Point bears S. by E. 2¾ miles; Campbell Point (the nearest part of the shore), E. ½ S. 1½ miles; and Judique Church, (a large wooden building without a steeple), N.E. by E. The least water (4 feet) is close to the outer point of the shoal, and when on it the western extremity of the highland of Cape Porcupine will appear in the same line as Flat and Heffernan Points, which form the right extremity of Breton Island at the entrance of the Gut of Canseau, and which bear S. ½ W.—If the whole of the highland of Cape Porcupine be kept open to the west

of Heffernan Point, the shoal will be cleared in 6 or 7 fathoms: or if the church at Port Hood be kept open to the west of Cape Susan, the shoal will be cleared in not less than 4 fathoms. There are 4 fathoms of water between this shore and the land, but only small craft should attempt the passage. *Judique Shoal.*

Judique Bank lies 2¾ miles N.N.W. from the shoal, with 4½ fathoms least water on a small rocky patch, with a great deal of foul ground around it. When on this patch, Portsmouth Point (the south end of Smith Island) and Cape Linzee will appear touching, and bearing N.N.E. ½ E.; Judique Church, E.S.E. ½ E. 3¼ miles; and the left or eastern termination of the highland of Cape Porcupine just shut in behind Heffernan Point. This bank, which is only dangerous to very large ships, when there is a heavy sea running, will be cleared by keeping Cape Linzee shut in behind Smith Island; or the whole of the highland of Cape Porcupine open to the westward of Heffernan Point. *Judique Bank.*

Judique Pond, close to the north of the church, is barred by a sandy ridge, so as only to admit boats at high water. The shallow water extends off it to the distance of 1½ miles. Catherine Pond and Susan Creek, distant 3 and 5 miles respectively to the north of Judique Church, are similar places; the latter admits boats at high water, and is situated just to the north of Cape Susan, rendered remarkable by the white gypsum in its cliffs. *Judique Pond.*

159. Port Hood,* the only safe anchorage on the west coast of Breton Island to the north of the Gut of Canseau, was formerly a much more secure harbour; Smith Island being then a peninsula, united to the mainland by a range of high sand-hills, which has since been entirely swept away, and the sand widely spread over the northern parts of the harbour. The first breach in this sand-bar was formed by the sea about 20 years ago, during a heavy gale from the north; it was at first a very narrow channel, and might perhaps have been easily closed, but, being neglected, the tidal streams enlarged it with increasing rapidity, until the present channel, 600 fathoms wide, and 9 feet deep at low water, was formed between the island and the mainland. The combined action of the waves and tides is said to be still widening and deepening this passage, thus admitting more and more the heavy swell from the north, and thereby rendering the harbour insecure, *Port Hood.*

* See Plan.

Port Hood. excepting over towards Smith Island, the eastern side of which forms a bay where the anchorage is still perfectly safe with all winds. At this anchorage, in which vessels may choose any depth from 3 to 4½ fathoms, the bottom is of mud that holds well, and the heavy swell is prevented from rolling in round the N.E. extreme of the island, by a long shoal, derived from the ruin of the sand-hills, and which runs to the southward from Smith Point, with only 4 feet of water for the first 300 fathoms, and less than 3 fathoms for an equal distance farther. This shoal must be carefully avoided in hauling in to the anchorage. The shelter from all south winds is complete, being afforded by

Spithead. the SPITHEAD, which is a sandy flat, nearly dry at low water, extending 600 fathoms to the eastward from Portsmouth Point, the south extremity of the island. THE SPITHEAD, which is very steep, and can usually be seen, will be cleared at the distance of 50 fathoms, by keeping the small fish-shed, on the wharf next within Smith Point, exactly in one with the chimney of the house behind it, bearing N. ¼ W.

Dean Shoal. On the opposite, or mainland side, there is also a steep sandy flat, called the DEAN SHOAL, which runs off from the sandy beach at Mill Creek to the distance of 300 fathoms; this, and the shallow water on that side, as far out as opposite Portsmouth Point, but not further to the south, will be cleared at the distance of 100 fathoms, by the line of Cape Linzee and Isthmus Point in one, bearing about N. by E. ¼ E. On the same side, but outside the entrance of the harbour, a rocky shoal, with 13 feet least water, runs out 360 fathoms from the shore half a mile to the northward of Ragged Point. This being very steep, must be carefully avoided by a large vessel. Cape Susan and Kate Point in one, bearing S. by W., just clears it, but may not be easily made out by strangers.

Smith Island. SMITH ISLAND is 2 miles long and 210 feet high: it possesses much fertile land, and the two Smiths, father and son, have flourishing farms on the inner side of the island. The elder Smith's house and barn will be seen in the bay, and those of the younger, together with his fish-shed and wharf, farther to the N.E., near the other end of the sandy beach, and a quarter of a mile within Smith Point. These objects are mentioned because they form leading marks for the anchorage. With the exception of the sandy beach in the bay above mentioned, the island is every-

where surrounded by cliffs of various heights up to 123 feet. *Smith Island.* They are formed of soft reddish sandstones, shales, and marls, containing occasionally thin seams of coal, with beds of gypsum, limestone, and trap, which last are well shown at the N.W. end of the island.

Henry Island, or Just au Corps, lies about a mile outside, *Henry Island.* or W.S.W. from Smith Island. It is much the smaller of the two, being one mile long, and its greatest height is 195 feet above the sea at high water. It is of the same rock formation, and also nearly surrounded with cliffs, which yield rapidly to the action of the waves and of the atmosphere; and which, on the outer side, attain the elevation of 100 feet above the sea. It has no permanent inhabitants, but is much frequented by fishermen during the fishing seasons.

This island is bold to seaward, but shallow water runs out from Fishery Point, its S.E. extremity, one-third of a mile to 3 fathoms, and three-quarters of a mile to 5 fathoms.

The passage between these islands is rendered so extremely intricate and dangerous by rocky shoals, that it should never be attempted, unless in a very small vessel and with fine weather.

The village of Port Hood will be seen on the mainland oppo- *Port Hood Village.* site the northern part of Smith Island: it is well situated, and will be recognised by the steeple of the Roman Catholic Church, and the Court-house of stone. Supplies of fresh provisions may be obtained there, but there is no good watering-place, the supply from the wells of Smith Island being scanty and not very good, while the brooks of the mainland are difficult of access, and sometimes nearly dry in summer.

The following directions, with reference to the Plan, and *Port Hood.* to the foregoing description of the dangers and leading marks, will enable the intelligent seaman to take his vessel in or out of Port Hood with safety:—Having a fair wind, pass to the southward of Henry Island, at a distance not less than a quarter of a mile, steering E. by S. until the Roman Catholic Church at Port Hood opens out to the southward of Portsmouth Point, then change course so as to pass the latter at the distance of three or four hundred fathoms, or in not less than 5 fathoms of water; taking notice, that the shallow water off it extends to the distance of 210 fathoms. This course should be a little to the northward

Port Hood. of E.N.E. and directly towards a house rendered remarkable by its lower story being of stone, while the upper part is of wood, and which should be nearly in one with, or only just open to the northward of a hut near the entrance of a small brook at the north end of a range of cliffs. Continue the course thus indicated, until Henry Point (N. end Henry Island) and Portsmouth Point come in one; when change the course immediately, and steer directly for the Roman Catholic Church, or N.E. ½ N., until the younger Smith's fish-shed (on the wharf next within Smith Point) comes in one with the chimney of his house, bearing N. ¼ W. Keep these marks exactly in one, running towards them, (they will lead in clear of the Spithead bank, as already mentioned,) and when the S.W. end of the elder Smith's barn comes in one with the chimney of his house, bearing N.W. by N., change the course, and steer directly towards them, until Cape Linzee comes in one with Smith Point; when the vessel will be in the *Anchorage.* best anchorage, and in 4 fathoms at low water, with mud bottom.

If any difficulty be experienced in distinguishing the younger Smith's fish-shed, let the N.E. ½ N. course towards the Roman Catholic Church be continued, until Isthmus Point and Cape Linzee are in one, then change the course, and keep them so, running towards them, until the S.W. end of the elder Smith's barn comes in one with the chimney of his house, bearing N.W. by N.; and these last-named marks will lead to the anchorage as before stated.

Tides. It is high water here, on the full and change days, at 9 hours. The rise in ordinary spring tides is 4½ feet, and in neap tides 2 feet. The tidal streams are weak at the anchorage, and their rate does not ordinarily amount to one knot anywhere within the harbour. The flood comes from the north, and the ebb from the south. The flood stream from the north meets that which comes in through the Gut of Canseau off Long Point, whence they set to the N.W., curving round the bay towards Cape George.

THE WEST COAST OF BRETON ISLAND.

Breton Island, West Coast. 160. At Cape Linzee, 1½ miles northward from Port Hood, the west coast of Breton Island trends away to the N.E. by E., continuing in that direction to Cape St. Lawrence, a distance of

73 miles, without either harbour or safe anchorage for ships. The general character is high and bold, the dangers being few and close in shore, but it is nevertheless a dangerous coast to be near in autumn or early winter, when the prevailing N.W. winds send in a heavy sea, and the set of the current is often in the same direction. The swell frequently precedes the wind by many hours, and, as there is no good holding-ground, becomes dangerous to vessels caught close in shore. Even with a smooth sea, and in fine summer weather, vessels are set in towards this coast; an effect which seems to be due sometimes to the general current from the N.W. coming from between the Magdalens and Prince Edward Island, and at other times to the direction of the ebb stream from the strait of Northumberland inclining towards these shores. These streams, being inconstant and irregular, both in strength and direction, are therefore the more dangerous, and require the more to be guarded against. In the summer months however, the rate of the current or tides will not be found to exceed one knot, even close in shore; excepting round Cape St. Lawrence and Cape North, where it sometimes runs at the rate of 2 or 3 knots, causing a heavy breaking sea. Its direction for three-fourths of the time is from the westward; this appears to be due to the combined action of the current and ebb tide predominating over the flood stream from the N.E., so as to render it nearly imperceptible, excepting at or near the spring tides. There is no doubt that winds, present or at a distance, also influence these streams, as they have been observed to do in all parts of the Gulf.

The prevailing rocks of this coast are sandstones, shales, and conglomerates, with occasional beds of gypsum, and thin seams of coal; together with a more ancient slate formation, in nearly vertical strata, forming the higher hills, and rising in one part to nearly 1300 feet above the sea. These rocks form precipitous shores, on which boats can land only in fine weather, at the mouths of ravines or small streams. The soil, especially in the valleys and lower grounds, appears to be productive, and well suited to the rearing of cattle, considerable quantities of which are annually exported from Mabou and Margaree Rivers. The settlements continue along the coast as far northward as Chetican, after which the mountains approach close to the shore, excepting at Grandance, where there are seven resident families.

Fisheries. The fisheries are valuable. Salmon are taken in all the principal streams, and Margaree is so celebrated for its salmon fishery that it has sometimes been called Salmon River. Herring, mackerel, cod, &c., abound in their seasons, and are frequently taken in large quantities. The seal fishery is also attempted occasionally, but is a precarious pursuit. Having made these general remarks, we shall now proceed to notice briefly the few places that afford shelter to small craft, proceeding in order to the N.E.

Mabou River. 161. MABOU RIVER,* 5 miles from Port Hood, admits small schooners, having 4 feet at low water over its bar of sand. The bar shifts occasionally during heavy N.W. gales, but is seldom disturbed during the summer months, when those gales are of rare occurrence.

Tides. The entrance, at the southern end of a low sand-bar, is only 50 fathoms wide, and the tides frequently run there at the rate of 4 knots; it is therefore a dangerous place to enter, excepting with a flowing tide and a smooth sea. It is high water there, on the full and change days, at about 9 hours; the rise, in ordinary spring tides, is 4 feet, and in neap tides 2 feet. N.E. winds often cause high tides; S.W. winds, the contrary.

From the entrance to the bridge, a distance of 3½ miles, this river resembles a mountain lake; being, in one part, three-quarters of a mile wide, and 8 fathoms deep. Boats can ascend with the tide to 2 or 3 miles above the bridge, where the fresh water forms only a small stream. Besides the Mabou, which is the main branch, there are two other smaller streams, the S.W. arm and Becket River, which last enters from the eastward.

The shores of the Mabou are well settled, principally by Scotch highlanders; flourishing farms are seen on either side, and there is a Roman Catholic Church on the northern bank, 3 miles within the entrance.

The scenery is very beautiful, the mountains rising immediately from the northern shore to the height of 870 feet.

Mabou Highland. THE MABOU HIGHLAND is a very remarkable feature of the coast, seen from great distances out at sea. It extends 11 miles along the coast to the N.E., forming a lofty and precipitous shore, and rising to the height of 1000 feet above the sea. After

* See Plan.

passing these highlands, the coast becomes less elevated, the beaches and landing-places more frequent, and the settlements are continuous until we pass Chetican Island. *Mabou Highland.*

SEA-WOLF ISLAND, distant 23 miles N.E. from Port Hood, is of an oval shape, 1100 fathoms long, parallel to the shore, 300 fathoms broad, and 200 feet high. It is of sandstone, precipitous and quite bold all around, excepting at the N.E. point, and there the shallow water extends only to the distance of one cable. It affords some shelter to small fishing-vessels and boats, which can land upon it only in fine summer weather; at other times the sea rolls completely round it, and the anchorage is never safe, the ground being everywhere rocky. *Sea Wolf Island.*

The depth between this island and the shore, from which it is distant rather more than 2 miles, is 7 fathoms, over a bottom of rock, with loose sand and gravel occasionally. The neighbouring sea abounds with fish.

MARGAREE RIVER,* which is 7½ miles further to the N.E., has 5 feet over its rocky bar at low water, in a very narrow and intricate channel, through which the tides run at the rate of 4 knots. It is only under favourable circumstances of wind and weather, and with a smooth sea, that schooners can safely attempt to enter it. The surf on the bar is at times very heavy and dangerous to boats, especially when the strong tide is running out against the wind and sea. The shores of this river are well settled, principally by Acadians and Scotch highlanders, who, besides farming, prosecute the salmon and other fisheries. *Margaree River.*

It is high water on the full and change days at 8 h. 40 m., the rise in ordinary spring tides being 3½ feet, and in neap tides 2 feet. Boats can ascend 5 or 6 miles from the entrance, at which distance the tide ends. *Tides.*

Between Margaree and Chetican there are several places where boats can land in fine weather, especially at Squirrel Pond, distant 3 miles from the last-named place. There are farms all along this part, the mountains running parallel to the shore, at a short distance back, and attaining, at Mount Squirrel, in rear of the pond of the same name, the elevation of 1220 feet above the sea.

162. CHETICAN ISLAND, distant 10 miles N.E. from Marga- *Chetican Island.*

* See Plan.

Chetican Island.

ree, is only an island when high tides overflow the low and narrow beach of sand and shingle which, at other times, unites it to the mainland at its southern extremity. This beach forms the shore of the bay, within the S.W. point of the island, where the Jersey brig, employed in the fisheries, usually lies moored during the summer months; receiving some shelter from the shoal which runs out half a mile to the southward from Chetican Point, but completely exposed to winds from between S.W. and N.W., which send in a heavy sea. The depth of water in this roadstead is 4½ fathoms, but the bottom, of sand and gravel, is so loose and bad for holding, that the anchorage becomes quite unsafe after the month of August; as was experienced by one of the Jersey vessels several years ago, when she was driven from both anchors, and completely wrecked on the beach: since which accident they endeavour to leave before the commencement of the September gales.

At no time is this anchorage to be recommended, and therefore vessels merely wishing to communicate with the shore had better anchor outside at the distance of a mile or two, where they will have room to get under way in the event of the wind coming in from the westward.

The establishment of Messrs. Robin and Co., of Jersey, on Chetican Point, is the principal fishing-station on this coast, and will be easily recognised by the buildings, fish-stages, and flagstaff. There also is the post-office, at which the mail route from the southward terminates. There are several other houses on the inner side of the island, and a settlement of Acadians on the mainland opposite, where supplies of fresh provision to a limited extent may be obtained, and also water, which cannot be had good or in any considerable quantity upon the island. There is no landing on the outside of Chetican Island, where the cliffs of sandstone, containing coal fossils, are everywhere perpendicular or overhanging, being constantly undermined by the sea. These cliffs, which extend the whole length of the island, from Chetican Point north-eastward to Enragée Point, a distance of 3¼ miles, are nearly equal in elevation to any part of the island, rising in one part to the height of 200 feet above the sea.

Chetican Harbour.

CHETICAN HARBOUR,* between the island and the mainland,

* See Plan.

is entered from the N.E. between the shingle spit at Gros Cape, the N.E. extreme of the island, and Caveau Point. Within this entrance, but outside the bar, which is half a mile further in, small fishing vessels sometimes anchor, but the northerly winds send in so heavy a sea, that this is considered even less secure than the unsafe anchorage at the S.W. end of the island. There is a depth of 3½ fathoms within the harbour, but only 2 feet at low water over its bar of sand, which is then in great part dry. *Chetican Harbour.*

It is high water here on the full and change days, at 8¼ hours; the rise in ordinary spring tides is 3 ½ feet, and in neap tides 2 feet. N.E. winds cause high tides, and S.W. winds the contrary. *Tides.*

The Caveau Shoals are two rocky patches, with 11 feet least water, lying at the distance of half a mile off Caveau Point, and from one-third to three-quarters of a mile from Gros Cape, on a N.E. by E. line of bearing. They are much in the way of vessels wishing to anchor off the entrance of the harbour. *Caveau Shoals.*

The Jerome Ledge, with 5 feet least water, lies in the same direction from Gros Cape, and at the distance of 1¾ miles. It is of considerable extent, being two-thirds of a mile long, and its N.E. point reaches to the distance of a mile out from the shore. The line of 10 fathoms water is only 300 fathoms outside this ledge and the Caveau Shoals: there is therefore little warning from the lead; but vessels beating alongshore, and standing towards them, will avoid them by tacking when the points on the outside of Chetican Island, namely Enragée Point and the Capes, come in one, bearing S.W. ¼ W. *Jerome Ledge.*

At Presqu'ile, 3 miles E.N.E. from Gros Cape, the mountains come close down upon the shore, after which there are no inhabitants, nor any good landing-place, till we arrive at Grandance, 15 miles from Chetican, where there is a settlement of seven families, and a small river silted up by a shingle beach, on which boats can land, and be hauled up in case of need. From Grandance to Cape St. Lawrence, a distance of 13 miles, the coast is mountainous, with precipitous shores, affording an indifferent landing for boats at one or two places, and there only with a smooth sea. *Presqu'ile.* *Grandance.*

163. Cape St. Lawrence, which forms the termination of the west coast of Breton Island, is of slate rock, affording no *Cape St. Lawrence.*

Cape St. Lawrence. landing excepting on the west side, where there is a brook, and a steep stony beach, on which a boat can be hauled up with difficulty. Proceeding round this headland to the S.E., we first *Bear Hill.* observe the remarkable BEAR HILL, a sugarloaf 750 feet high, and close to the shore. This is distant less than a mile from the *Black Rock.* cape; and at an equal distance further on BLACK ROCK will be seen, always above water, and about 160 fathoms off shore. *Meat Cove.* MEAT COVE, where there is a settlement, and good landing for boats, lies 300 fathoms further in the same direction, and one mile N.W. from Black Point.

St. Lawrence Bay. ST. LAWRENCE BAY, between Black Point and Cape North, is 4½ miles wide and 1¼ miles deep, with bold shores, and a depth of water not too great for anchoring; but the bottom is not to be trusted, being either of rock or loose sand. Vessels requiring supplies may anchor there in the summer months, when strong northerly winds are of rare occurrence, and will find 9 or 10 fathoms water at the distance of half a mile off shore in the bottom of the bay, but they should be ready to weigh *Wreck Cove.* immediately on the approach of a wind from the sea. At WRECK *Deadman Pond.* COVE and at DEADMAN POND there are settlements, and good landing, the principal fishing establishment being at the last-named place.

Cape North. CAPE NORTH, the N.E. extremity of Breton Island, is a very remarkable, bold, steep, and rocky headland, of slate in nearly vertical strata, rising abruptly from the sea to the height of 1100 feet. There is no shallow water off it, only some rocks above water, which at Money Point, a mile to the S.E. of the cape, run off to the distance of a long cable. The passage between this headland and the Island of St. Paul is 13 miles wide, with very deep water, and no other danger than that which arises from the frequent and heavy squalls which prevail off this great promontory.

For a description of the Island of St. Paul and its two Lighthouses, see Chapter IV., Art. 30, p. 43, in the first volume.